BEFORE THE CANTERBURY REGIONAL COUNCIL

***IN THE MATTER OF*:** the Resource Management Act 1991

AND

***IN THE MATTER OF*:** a submission on the Proposed Canterbury Land and Water Regional Plan

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EVIDENCE OF KEITH WILLIAM BRIDEN FOR DIRECTOR-GENERAL OF CONSERVATION

Dated 2 April 2013

Director General of Conservation
Private Bag 4715,
Christchurch 8140
Tel: (03) 371 3700
Counsel: Tara Allardyce

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STATEMENT OF EVIDENCE OF KEITH WILLIAM BRIDEN

INTRODUCTION

1 My full name is **Keith William Briden**

2 I am a Technical Advisor at the Department of Conservation's (DOC) National Office based in Christchurch. I have been DOC's key contact for invasive environmental weeds for 14 years.

3 I hold the following qualification which is relevant to this hearing: a Bachelor of Forestry Science (Canterbury).

4 I am a full member of the New Zealand Biosecurity Institute, the New Zealand Plant Protection Society, and the New Zealand Ecological Society.

5 I have provided advice on a wide range of invasive environmental weed issues at national level for 14 years. This has included funding allocations for wetlands, aquatic ecosystems, and riparian vegetation, establishing a quality management system for weed control, development of weeds training material, and development of community involvement in weed work through the "Weedbusters" education and awareness programme.

6 I am therefore familiar with the management approaches for pest plant control related to wetlands, aquatic ecosystems, and riparian margins. I am also familiar with the management approaches in hill or high country and erosion-prone areas.

7 I am familiar with the proposed Canterbury Land and Water Regional Plan (pCLWRP) so far as it pertains to management of pest species.

8 I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this evidence are within my area of expertise.

9 I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

10 My evidence will deal with rules 5.25 and 5.27 (discharge of agrichemicals) in the pCLWRP as they pertain to DOC's operations and which arise in relation to Hearing Group 2.

11 My evidence will address the following:

- Environmental Protection Agency (EPA) role in approving herbicide use
- General conditions required by EPA for herbicide use onto or into water
- Training and certification for use of herbicides
- Industry standards
- Certification for aerial application of herbicides
- Glyphosate – Rule 5.27
- Costs and benefits – Requirements for Regional Pest Management Plans

12 By way of background to my evidence, at present I understand the effect of proposed Rule 5.25 in the pCLWRP is that it is a permitted activity to discharge agrichemicals to land where it may enter water, but the rule does not cover the direct discharge of agrichemicals to surface water. This means DOC would require consent for such discharge. In its submission DOC sought that the direct discharge of agrichemicals to surface water be provided for as a permitted activity within Rule 5.25 but that submission has not been accepted.

13 Further, in accordance with the pCLWRP (rule 5.27) it is a permitted activity to incidentally discharge diquat or glyphosate to a surface water body via land based methods subject to certain conditions. The s42A report volume 2 (Report No. R13/11) recommends glyphosate be removed from the rule and I

understand the net effect of this deletion would require that a resource consent is sought for the discharge of glyphosate.

DOC's statutory duties to perform plant pest control

14 For background and context on DOC's statutory duties to perform plant pest control, please refer to paragraphs 11-17 of my evidence in chief for Hearing 1, a full copy of which is attached for your convenience as Appendix 1.

DOC's pest plant programme in New Zealand and in Canterbury

15 For background and context on DOC's pest plant programme in New Zealand and in Canterbury, please refer to paragraphs 18-28 of my evidence in chief for Hearing 1 (refer Appendix 1).

Environmental Protection Agency (EPA) role in approving herbicide use

Recent EPA decision regarding use of Herbicides Onto or Into Water.

16 An application was recently made to the EPA to approve the use of 4 herbicides onto or into water (a copy of the EPA decision, the herbicide formulations, and, conditions are attached as Appendix 2). Both DOC and Environment Canterbury were part of the applicant group. The EPA recently notified its decision, dated 10 December 2012 (APP201365) (the EPA reassessment decision), and has approved the use of 4 herbicides for use onto or over water (the approved herbicides).

17 The EPA reassessment decision needs to be considered as it clarifies certification requirements for those applying the approved herbicides over water. The EPA reassessment decision places extensive conditions around the use of these herbicides over water which in my opinion negates the need for duplicative regional council consents for the approved herbicides. If consent is still required, in my view consent conditions should be set that are consistent with the EPA reassessment decision.

18 At least one further application for herbicide use is currently being assessed by the EPA for use onto or into water and there are likely to be future applications.

19 In my opinion, in light of the EPA reassessment decision Rule 5.25 needs reconsideration to include the use of the approved herbicides over water. In my view, with appropriate conditions, this activity should not require consent. This is because the EPA has set extensive conditions after considering adverse effects of the approved herbicides.

20 I therefore seek a mechanism to include new herbicides as they are approved and recommend that Rule 5.25 is amended so that herbicides approved by the EPA for application onto or into water is a permitted activity.

General conditions required by EPA for herbicide use onto or into water

21 The conditions prescribed by the EPA in the EPA reassessment decision for the approved herbicides are both extensive and sometimes specific to a particular substance. A full set of conditions can be viewed on the EPA website under "Application for the modified reassessment of aquatic herbicides (APP201365)". I have also appended a copy of the decision (attached as Appendix 2).

22 Conditions relate to:

- the species of weeds that can be controlled;
- written notifications (landowner/occupier, persons taking water for domestic supply within one kilometre downstream of the proposed discharge, every holder of a resource consent for the taking of water for water supply purposes within one kilometre downstream of the proposed discharge within one kilometre, aquatic farms, territorial authority, iwi, local Fish and Game, Department of Conservation, South Island Eel Industry Association);
- signage requirements;

- monitoring as required by the EPA (which will follow an approved monitoring plan); and
- other conditions.

23 In granting the permissions for the approved herbicides the EPA considered adverse effects involved in the use of the herbicides against the benefits and practicality of alternative methods. The EPA concluded that agrichemical control was more likely to achieve the benefits of controlling aquatic pest plants than other methods, and, that the magnitude of benefits was high.

24 Permissions have now been granted to members of the applicant group to spray certain weeds in Canterbury. Permissions have been granted to DOC, Land Information New Zealand, and Environment Canterbury. These permissions are tailored to local conditions in addition to the generic nationwide conditions.

25 The requirements set in the EPA reassessment decision for the approved herbicides include that before using the specified substance (aquatic herbicides in this case), any person wishing to apply the substance must obtain prior permission under section 95A Hazardous Substance and New Organisms Act 1996 (HSNO) for general or particular use of the herbicides.

Training and certification

26 The EPA reassessment decision proposed a set of conditions around training and certification for use of the approved herbicides, which were similar to those Environment Canterbury now proposes. During the later stages of the application process the EPA modified its proposed conditions to better reflect the correct legal requirements for those applying herbicides. These requirements are set out in regulations 9(1) and 9(2) of the Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001 (set out in Appendix 3).

27 The EPA certification requirement decided on is: "The substances be under the personal control of an approved handler during any application of the

substances into or onto water". This condition goes beyond the existing requirement by requiring personal control of an approved handler rather than the requirement that an approved handler "is present". This extra condition will generally apply to persons who are not commercial contractors and only apply small quantities of herbicides by manual knapsack method.

Industry standards

28 The requirement to be a Registered Chemical Applicator (RCA) is a voluntary industry certification scheme rather than a legal requirement. The RCA certification scheme applies to contractors who obtain the required level of NZQA standards and work experience. Contractors may decide to pay a fee to Growsafe to join the voluntary RCA scheme. The NZQA standards required for contractors do not apply to DOC staff, Environment Canterbury staff, and farmers or weed volunteers. The correct legal requirement is "Approved Handler" not a RCA.

29 Given the above, the EPA removed the requirement to be a RCA from its proposed conditions in the EPA reassessment decision.

30 Rule 5.27 should be amended to reflect wording used in the recent EPA decision, and to remove references to the GROWSAFE Registered Chemical Applicator's certificate.

Certification for aerial application of herbicides

31 The EPA also clarified certification requirements for aerial applications of Herbicide. In the EPA reassessment decision on page 21 it used the words " (3). Clause 1 is deemed to be complied with if, in the case of aerial application of the substance, the person who carries out the application has a current pilot chemical rating in accordance with part 61 of the Civil Aviation Rules".

32 AIRCARETM, like RCA, is a voluntary industry standard and is not a legal requirement. Currently there are two additional similar accreditation

schemes being developed as alternatives to AIRCARETM. It would make more sense to remove all references to AIRCARETM and replace with wording consistent with the EPA reassessment decision i.e. “in the case of aerial application of the substance, the person who carries out the application has a current pilot chemical rating in accordance with part 61 of the Civil Aviation Rules”.

33 If the term AIRCARETM is retained in rule 5.25 I suggest adding the wording “or equivalent industry based certification”.

Rule 5.27 - Glyphosate

34 I also note in the Section 42A Report Volume 2 it is recommended to remove “or glyphosate” from Rule 5.27. I understand the net effect of this deletion would require that a resource consent is sought for the discharge of glyphosate.

35 This decision appears to be based on information supplied in a submission provided by Aquatic Weed Control Limited and Eel industry association to “seek to delete reference to glyphosate, as it is not allowed to be discharged to water”. This is incorrect. The EPA website and text in the EPA reassessment decision regarding the approval of the approved herbicides both state that Glyphosate based agrichemicals are approved for use over water.

36 Glyphosate is widely used by farmers and volunteer groups to establish riparian plantings along stream margins both as a pre plant spot spray and then to release native plants from weed competition.

37 Given the above, I see no reason to remove glyphosate from this rule. As stated earlier an approved handler certification is the requirement for farmers, DOC staff and weed volunteers. It is not necessary to require Registered Chemical Applicators certificate for these groups. These agencies, farmers, and volunteers should not be required to apply for resource consents.

Cost: benefit - Requirements for Regional Pest Management Plans

38 In preparing a Regional Pest Management Plan, Environment Canterbury may propose "good neighbour rules" for weed control (refer to my evidence for Hearing Group 1). To support such proposals Environment Canterbury must supply cost: benefit tests in order to justify any proposals. Crown Agencies are required to scrutinise such proposals especially those that are not supported by sound cost: benefit data. If Crown agencies accept good neighbour rules they will be bound by legislation to carry out good neighbour weed control as required.

39 Resource consent costs and associated compliance conditions add to the cost of weed control work and will make it increasingly difficult for Environment Canterbury to pass cost: benefit tests. For example if rule 5.27 requires DOC staff, farmers, and weed volunteers to apply for resource consents to apply glyphosate, and be RCA's, this will significantly increase costs.

40 Delays in conducting weed work also add costs. If a new weed is found in Canterbury, immediate herbicide application may be required to prevent spread and avoid exponential cost increases associated with delays in obtaining consents.

41 A recent example of the consequences of such delay is where Environment Waikato had a $200 job to spray a newly found weed in a catchment that fed a much larger catchment system. Environment Waikato applied for resource consent, EPA permissions generally, and an emergency permission via the EPA. None of the applications were approved before a flood event caused spread of the weed. It is now estimated that cost of control after one seasons delay is in the order of $100,000 (Biosecurity Manager Environment Waikato, John Simmons, pers comm.).

42 Environment Canterbury should consider the cost impacts of requiring unnecessary training and resource consent costs and how these will ultimately impact on Environment Canterbury's ability to justify good

neighbour rules in its upcoming review of its Regional Pest Management Strategy.

Keith William Briden

2 April 2013

Appendix 1 – copy of Hearing Group 1 Evidence in Chief

BEFORE THE CANTERBURY REGIONAL COUNCIL

***IN THE MATTER OF*:** the Resource Management Act 1991

AND

***IN THE MATTER OF*:** a submission on the Proposed Canterbury Land and Water Regional Plan

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EVIDENCE OF KEITH WILLIAM BRIDEN FOR DIRECTOR-GENERAL OF CONSERVATION

Dated 4 February 2013

Director General of Conservation
Private Bag 4715,
Christchurch 8140
Tel: (03) 371 3700
Counsel: Tara Allardyce

STATEMENT OF EVIDENCE OF KEITH WILLIAM BRIDEN

INTRODUCTION

1 My full name is **Keith William Briden**

2 I am a Technical Advisor at The Department of Conservation's National Office based in Christchurch. I have been the Department's key contact for invasive environmental weeds for 14 years.

3 I hold the following qualification which is relevant to this hearing: a Bachelor of Forestry Science (Canterbury).

4 I am a full member of the New Zealand Biosecurity Institute, the New Zealand Plant Protection Society, and the New Zealand Ecological Society.

5 I have provided a wide range of weed advice at national level for 14 years. This has included funding allocations for wetlands, aquatic ecosystems, and riparian vegetation, establishing a quality management system for weed control, development of weeds training material, and development of community involvement in weed work through the "Weedbusters" education and awareness programme.

6 I am therefore familiar with the management approaches for pest plant control related to wetlands, aquatic ecosystems, and riparian margins. I am also familiar with the management approaches in hill or high country and erosion-prone areas.

7 I am familiar with the proposed Canterbury Land and Water Regional Plan (pCLWRP) so far as it pertains to management of pest species.

8 I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this evidence are within my area of expertise.

9 I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

10 My evidence will deal with the following:

- Discuss the Department of Conservation's statutory duties to perform plant pest control;
- Provide an overview of the Department's pest plant programme in New Zealand and in Canterbury in particular;
- Comment on the provisions of the Proposed Canterbury Land and Water Regional Plan that pertain to weed control and which arise in relation to Hearing Group 1.

THE DEPARTMENT OF CONSERVATION'S ROLE IN PEST PLANT MANAGEMENT

11 The Department of Conservation ("DOC") is the leading central government agency responsible for the conservation of New Zealand's natural and historic heritage.

12 DOC has duties under several pieces of legislation to control pest plants on land that it manages (including lakebeds, riverbeds and riparian margins). It also has responsibilities to control pests on land which it does not manage but which it neighbours.

13 DOC's primary legislative mandate for controlling pest plants is the Conservation Act 1987. Other key statutes, specifically the National Parks Act 1980 and Reserves Act 1977, also impose obligations upon DOC to manage pest plants.

14 DOC must also meet requirements for weed control under the Biosecurity Act 1993. Under this legislation Environment Canterbury has in place a Regional Pest Management Strategy (RPMS) 2011 – 2015. This strategy requires the control of a number of weed species that occur on DOC land, be they in aquatic, riparian or terrestrial locations (including those in erosion prone areas).

15 Recent amendments to the Biosecurity Act 1993 enable Environment Canterbury to prepare a Regional Pest Management Plan and Regional Pathway Management Plans which oblige Crown agencies to also perform weed control along boundaries with private landowners. Arrangements will also be made to undertake weed control actions on land not directly managed by DOC. This is known as the "good neighbour" principle.

16 The consequence is that DOC will have pest plant control duties which extend beyond its boundaries. In performing weed control on land **within** and **outside** its immediate control, DOC will need to comply with the rules contained in the pCLWRP. It therefore has an interest in the content of the rules, policies and objectives which touch upon pest plant management.

17 My role within DOC means that I have direct responsibility for working within those planning constraints.

DOC'S WEED MANAGEMENT PROGRAMMES

18 DOC manages around 8.5 million hectares of land which is almost one third of New Zealand's land area. Accordingly, a wide range of freshwater wetlands, lakes, rivers and streams are covered by DOC. Likewise riparian margins, hill and high country and erosion-prone land are also within its statutory management functions.

19 DOC's Annual Report for the year ended 30 June 2011 shows that 475,439 hectares of land received treatment for weeds using a site-led approach.

20 In addition, the total area receiving weed control over a number of years, called "land under sustained weed control", is reported to be 1,748,522 hectares.

21 Furthermore, 114 weed control work plans were completed using a "weed-led" approach. A "weed-led" approach is used when a weed is new to New Zealand or a geographical area is at an early stage of invasion. Objectives of a "weed–led" project are usually eradication or containment.

22 DOC's total weed expenditure for the year ended 30 June 2011 was $19,086,000.

23 DOC does not specifically track how much of this work is carried out in aquatic, estuarine, and riparian ecosystems, nor on erosion-prone land or on hill/high country which are the focus of this evidence. However, I can say that 21 of the 114 weed-led projects in New Zealand are directly related to aquatic, estuarine or riparian weed species. Furthermore, 21% of weed sites funded via DOC biodiversity strategy funding was directly related to weed work related to aquatic, wetland, estuarine, or, riparian sites in New Zealand. 40% of the national weed budget is spent controlling wilding conifers in the high country.

DOC's Pest Plant Programme in Canterbury

24 DOC carries out a wide range of plant pest control throughout Canterbury.

25 Examples of the main weeds controlled in riparian areas and in the beds or lakes and rivers in Canterbury are:

- Spartina in estuaries;
- lupin on braided riverbeds and riparian areas;
- grey and crack willows on riparian areas and within riverbeds or lakebeds; and
- purple loosestrife on riparian areas.

26 Many other weed species which are controlled on terrestrial sites may also require control on the margins of rivers, lakes, wetlands and estuaries. The main weed species in this category are:

- wilding conifer;
- cherry; and
- heather.

27 Some weed species are controlled on hill and high country land (i.e. over 600m and exceeding a 25 degrees slope), and on erosion-prone land. The main control here is for wilding conifers.

28 In Appendix 1 I have included a list of significant pest plants that affect riparian areas, riverbeds, lakes and hill or high country in Canterbury. These species are also the ones that are likely to be affected by the rules contained in the pCLWRP.

Effective and practical methods for controlling pest plants

29 Some examples of recognised effective and practical weed control are listed in Appendix 2. I mention Appendix 2 at this point because it provides background for my comments below regarding the provisions of the pCLWRP.

COMMENTS ON THE PROVISIONS OF THE pCLWRP FROM A WEED MANAGEMENT PERSPECTIVE

30 I note that there are three policies in the pCLWRP which touch on pest plant management: Policy 4.21, Policy 4.22, and Policy 4.85. The first of these policies relates neatly to the topics covered by Hearing Group 1. However, Policies 4.21 and 4.22 are more naturally related to the "Pest Control and Agrichemical Discharges" topic which is dealt with at Hearing Group 2 as they largely pertain to the rules regarding application of herbicides and pesticides to water.

31 I have been asked to prepare evidence for Hearing Group 2 which will specifically address the issues under the "Pest Control and Agrichemical Discharges" topic. I will, at that hearing, comment more fully on the rules which reflect Policies 4.21 and 4.22. In the interim though I will make these general comments on them.

Policy 4.21

32 Policy 4.21 concerns the discharge of hazardous substances (in circumstances where they may enter water) to control a plant or animal pest or other unwanted organisms. It provides that discharges of this nature may only occur when: the substance is registered;

adverse effects are avoided as far as practicable; and good management practices are used.

"4.21 - The discharge of a hazardous substance to water, or onto or into land where it may enter water, to control a plant or animal pest or other unwanted organism only occurs:
(a) if the substance is registered under the Hazardous Substances and New Organisms Act 1996 for use against the target organism;
(b) if adverse effects on non-target organisms, Ngāi Tahu cultural values, or the use and consumption of water by humans or livestock are avoided as far as practicable; and
(c) where good management practices are used to minimise the risk of accidental discharge to water."

This policy was supported by the Director-General for Conservation and, as a pest management expert; I too can see the logic in it. It is now the case that a number of herbicides and piscicides are approved by the Environmental Protection Authority for direct application in water. In fact, DOC already uses a number of these in its management regime (please refer to Appendix 2). In the future there will be more such substances likely to gain approval from the Environmental Protection Authority.

In order to be approved for use in water these substances have to undergo rigorous assessments under the Hazardous Substances and New Organisms Act 1996. Accordingly, it would be unnecessary for the pCLWRP to seek to add significant additional controls to the manner or location in which they may to be used.

33 Many of our aquatic weeds can infest a new waterway from a single fragment. If aquatic weeds do enter new water bodies or riparian areas there is a very short period of time to eradicate or contain a weed infestation. An effective control method is essential. In most cases an effective herbicide is required for immediate use. Methods that can be used for widespread aquatic weeds such as mechanical

control and digging are not often suitable for an eradication attempt as the risk of creating fragments only exacerbates the spread of the weed. Whereas, a translocating herbicide is able to penetrate all parts of the plant and ensuring 100% kill. For an eradication attempt 100% of all plants must be killed.

34 A recent successful eradication was carried out on hornwort from two localised infestations in the South Island. In this case *endothall* proved effective. Without an effective herbicide, this serious aquatic weed would have established and spread throughout many South Island waterways. A small quantity of an effective herbicide used early to eradicate a new weed can eliminate the need to use large quantities of herbicide later to manage the ongoing impacts of widespread weeds. The control of weeds in these situations needs to be enabled and delays in obtaining consents mean the weeds can spread. This creates additional costs and risks the weed spreading to the extent it can no longer be eradicated or contained.

Policy 4.22

35 Policy 4.22 deals with the use, storage or discharge of hazardous substances, requiring those activities to be undertaken using best practicable measures to avoid the discharge into water and spillage.

"4.22 Activities involving the use, storage or discharge of hazardous substances will be undertaken using best practicable measures to:
(a) as a first priority, avoid the discharge (including accidental spillage) of hazardous substances onto land or into water, including reticulated stormwater systems; and
(b) as a second priority, to ensure, where there is a residual risk of a discharge of hazardous substances including any accidental spillage, it is contained on-site and does not enter surface water bodies, groundwater or stormwater systems."

36 Although this Policy is not directly relevant to plant pest management it does somewhat contradict the provisions of the previous policy. As a matter of clarification it should be clear that intentional use of herbicides or pesticides which do satisfy Policy 4.21 should be exempted from the requirements in 4.22(b) above regarding the prevention of them entering surface water

Policy 4.85

37 Regarding Policy 4.85 – The pCLWRP provides the following:

"Plant species listed in the Biosecurity NZ Unwanted Organisms Register or the Regional Pest Management Strategy are not introduced or planted in the beds or margins of lakes, rivers, hapua, coastal lakes, and lagoons, or wetlands."

38 As I explained in previous sections of this evidence, DOC expends considerable effort and money attempting to control weeds in these locations. It is important that the deliberate introduction of any species listed in either of those registers is banned.

39 While I support the wording of the Policy, I do wish to add two notes of caution:

- First, not all species listed in the NZ Register are also listed in the Regional Pest Management Strategy. Crack willow, for instance, only appears on the NZ Register but not in the RPMS. However, I support the notion that irrespective of which register the weed is mentioned in it should not be introduced to Canterbury's freshwater bodies.
- Second, in my experience it is possible, and even common-place, for organizations to apply for exemptions under the Biosecurity Act 1993 to plant species of weeds noted in the

Register. This has been a regular practice where flood control works are concerned and has allowed the use of pests like crack and grey willow to be deliberately introduced in Canterbury rivers. These particular species are very difficult to control and I support the policy as worded because it would preclude the introduction of those species even if an exemption is obtained.

Rule 5.143 (Vegetation in Lake and Riverbeds)

40 This rule raises two issues from a pest management point of view. The first is that it gives effect to Policy 4.85 by essentially banning (or "prohibiting") the introduction of pest plants to lakebeds and riverbeds if those species happen to be mentioned in either the NZ Register of Unwanted Organisms or the Regional Pest Management Strategy. The comments I made above regarding Policy 4.85 are therefore relevant here.

41 The rule (5.143(3)) also provides that: "No woody vegetation is disposed of in, on over or under the bed of a lake or river." I was unable to locate a definition of "disposal" in the plan. In the absence of such a definition it is possible that *in situ* death of weeds could qualify as "disposal".

42 In my experience it is normal practice to kill a variety of water-based weeds and allow them to breakdown *in situ*. Even large weed species, such as willow, are commonly left to die *in situ*. In fact, for the following reasons, it is actually considered to be good pest management practice to do so.

- It is impractical to remove large quantities of vegetation especially from remote sites;
- Removal of vegetation is expensive to carry out on a large scale. Weed control budgets are fixed funds. Money spent removing the weeds would mean that other important weed work would simply not be carried out.
- Disturbance of soil around pest vegetation is a major factor contributing to the spread of some weeds. Requiring that vegetation be removed rather than being allowed to die *in situ* may actually aggravate the problem.
- Removal of weeds creates weed fragments. This is particularly concerning in riparian and aquatic ecosystems where fragments can be carried downstream and one small fragment can create new weed infestations. Hand weeding or mechanical weed removal can be used for small patches of weeds before they become widespread but extreme care must be taken to remove all weed fragments.
- It can be dangerous from a health and safety perspective to require weeds to be removed from lakebeds and riverbeds.

43 I appreciate that there is a difference between, allowing a poisoned weed (like a willow) to die where it grew and, dumping woody weed waste from elsewhere into a lakebed or riverbed.

44 My interest here is in making sure that *in situ* death of poisoned weeds is not treated as "disposal" in terms of this rule. If it was then the implications for weed management programmes, like DOC's, could be profound.

Rules 5.147 – 5.149 Earthworks and Vegetation Clearance in Erosion-Prone Areas

45 Rule 5.147 (1) is concerned with vegetation clearance in riparian areas. I have noted the submissions made by the Director-General in relation to this rule which I will comment on in turn.

Limits on the scale of removal

46 DOC wishes to be able to remove an unlimited number of pest plants from riparian areas. It therefore supported the rule in so far as the rule allowed pest plant spraying to occur without the need to comply with the requirement that no more than 10% of an area be cleared at any one time. As I reiterate below, it is usual practice in conifer control for instance, to remove 100% of the weeds from an area. Failing to do so simply continues the infestation.

47 If only 10 % of conifers, for instance, could be removed this would exclude aerial herbicide application meaning physical thinning of conifers would be necessary. Manual control costs would be approximately 5-10 times the cost of herbicide application. Aerial application results in dead standing trees.

Limit on the method of removal

48 However, there are many species of weed in these riparian areas that it is better (from a weed management perspective) for us to **mechanically** remove rather than simply spray.

49 For instance, we often mechanically remove weeds near waterbodies as a means of defining the boundary for subsequent aerial spraying. In other situations we prefer to mechanically remove the weeds to prevent the discharge of herbicide into surface water.

50 In my expert opinion it is important that mechanical removal of woody weeds, in particular wilding conifers, be enabled in these riparian areas and not just spraying.

Limits on removing on land over 900m

51 The Director-General expressed the view that Rule 5.147(2) was too restrictive in so far as it effectively precluded the clearance of weeds on land over 900m.

52 Wilding conifer control is regularly carried out on land over 900m above sea level. What is more, it is normal practice to remove 100% of wilding conifers. Failing to do so will leave a seed source and a perpetual wilding conifer problem. Wilding conifers are listed in the Canterbury Regional Pest Management Strategy. Rule 8.13.6 of the Strategy requires landowners to prevent spread of wilding conifers. It would be difficult to comply with this rule and rule 5.147(2) of the pCLWRP.

The requirement to revegetate

53 In steep erosion-prone areas bare ground or scree is often the natural state of the land and removal of pines back to bare ground or scree is restoration. One of the historical reasons for planting wilding conifers was for erosion control. However, later research found that in most instances erosion was a natural process and bare areas and scree slopes are natural ecosystems.

54 With dead standing pines (i.e. conifers), following herbicide application, it is usual for introduced grasses to establish and there is some increasing evidence that native vegetation can also establish

beneath them. (In some instances trees are ground sprayed of mechanically cut for the purpose of avoiding spraying herbicide directly into water.) In some instances the conifers were planted of aerially seeded for erosion control.

55 Control of weeds, including wilding conifers, should be enabled on land above and below 900m. In my view there should be no limits placed on how much weed control can occur in these riparian areas either. In many cases 100% eradication will be necessary so limiting the size of the area that can be cleared at any one time (whether by mechanical or spraying means) would be counter-productive.

Rules 5,150-5.154 – (Vegetation Clearance and Earthworks in Erosion-Prone Areas)

56 Rule 5.150 essentially enables unlimited spraying (including of pest plants) on land with a slope less than 15 degrees. However, on land with a steeper gradient than 15 degrees the area capable of being sprayed at any one time is limited to 200m2.

<u>Limits on the area that can be sprayed i.e. 200m2</u>

57 As I noted in relation to Rules 5.147 (2) it is important that wilding conifer removal, in particular, is allowed to occur on steep (over 15 degrees) and less steep areas (under 15 degrees) without limits being placed on the total area that can be sprayed. It would be almost impossible to undertake a wilding conifer removal programme in a particular area if we had to ascertain which parts of the area we are treating are above or below the 15 degrees threshold. The most important thing to achieve is 100% eradication whatever the nature of the slope.

58 For this reason I can see sense in the Director-General's request that the limits on spraying not apply to plant pests listed in the NZ Register of Unwanted Organisms or tin the Canterbury Regional Pest Management Strategy nor to "woody weeds".

59 It should be noted that DOC supported other submitters (LINZ and Federated Farmers) who sought to enable removal of pest plants from erosion –prone areas so long as the species were:

- listed in the in the NZ Register of Unwanted Organisms; or
- listed in the Canterbury Regional Pest Management Strategy; or
- were a "woody weed".

60 The reason for this is because some species of conifers, which are woody weeds, are not listed in either of these documents. Larch is one example. Other examples include sycamore, cherry and hawthorn. This is largely because listing them would impose obligations on parties to control them and that would have ramifications for the forestry sector which deliberately plants conifers. The fact that they are not listed on either the Register nor in the Strategy does not mean they do not require controlling.

61 There is a partnership between DOC, Environment Canterbury, Federated Farmers, and Land Information New Zealand to coordinate wilding conifer control programs.

Requirement to revegetate

62 I am also aware that DOC has supported other submitters who raised the point that revegetation of areas cleared of pests in erosion-prone land is not always appropriate.

63 For reasons mentioned earlier it is not appropriate to revegetate in some locations: bare areas and scree slopes are natural ecosystems. What is more, the costs associated with revegetating areas where conifers have been removed is prohibitive (around $15,000/ha)[1].

64 In any event, sprayed conifers left to die *in situ* are likely to revegetate naturally in exotic grasses. There is also evidence from Marlborough Sounds that native hardwoods can regenerate under dead standing pines or conifers. The same may apply in other locations.

65 Weed control budgets are limited. If revegetation is required there will be even less money available to carry out the control of species like wilding conifers.

CONCLUSIONS

66 Vast amounts of money and resources are expended by DOC and others to control pest plants in Canterbury.

67 Initiatives in the pCLWRP such as Policy 4.85 and Rule 5.143, which preclude the introduction of pest species to riparian areas, lakes and rivers are wise and worthy of support.

68 Policy 4.21 is also sensible in that it enables the application of herbicides and pesticides directly to water where those have been approved for use in that way.

[1] Douglas, B Dodd, M. and Power, L – New Zealand Journal of Ecology (2007) 31(2): 143-153.

69 Similarly, policies and rules which enable the removal of pest plants with a minimum of formality and cost are also justified and sensible. However, amendments to Rules 4.147 and 5.150 will be needed if that aim is to be achieved.

Keith William Briden

4 February 2013

APPENDIX 1

Description of some of the Main Pest Plan Species Affecting Canterbury's Riparian areas, Riverbeds, lakebeds and Erosion-prone land.

Purple Loosestrife - riparian

Purple loosestrife is a weed that is controlled by DOC that invades riparian strips and lake margins. The native range of this species is Eurasia; throughout Great Britain, and across central and southern Europe to central Russia, Japan, Manchuria China, Southeast Asia and northern India.

Purple Loosestrife is rated in the top 100 alien invasive species worldwide. (Global Invasive Species Database, IUCN).

Legal status in New Zealand under the Biosecurity Act 1993 is: Unwanted Organism.

Where it has invaded other countries such as Canada and the USA it has become a serious environmental weed. It is one of the worst agricultural and environmental weeds in North America, invading large areas and displacing other plants. This plant rapidly invades damp ground, wetlands and shallow water. It overtops native species with dense bushy growth, is long-lived and produces millions of long lived highly viable seeds from an early age. It tolerates hot or cold conditions and low to high nutrient levels in the water, but is intolerant of salt water.

Fortunately there are very few places in New Zealand so far where purple loosestrife is growing in the wild. However, if no action is taken, this species may spread out of control. Seeds are dispersed by water, but may also be spread by wind and birds and on machinery. Because it has so many seeds, once established, purple loosestrife can quickly form a dense stand that excludes most other vegetation. A single plant can produce over a million seeds a year.

Image of purple loosestrife infestation in Minnesota USA *Courtesy of spinner.cofc.org*

The Department of Conservation (DOC), Ngai Tahu, Environment Canterbury and the Christchurch City Council are working together to try to eradicate purple loosestrife from Canterbury. Purple loosestrife thrives in damp places, particularly river or lake margins, and can clog drains and irrigation ditches. It also crowds out native plants, and changes habitat for wetland birds and fish.

Spartina – Estuarine

(*Spartina anglica S. alterniflora and S. x townsendii*).

S. *alterniflorais* is native of eastern North America. Other species of hybrid origin are from England. *S.anglica* is the most common spartina species in NZ and is naturalised from Nth Auckland to Invercargill and Stewart Island. Spartina was introduced to many countries for the purpose of estuarine reclamation. It has become weedy in many countries including the western seaboard of the USA, the Mediterranean, Australia and New Zealand.

Spartina is rated in the top 100 alien invasive species worldwide. (Global Invasive Species Database, IUCN)

Legal status in New Zealand under the Biosecurity Act is: Unwanted Organism.

In New Zealand there is no equivalent native grass species that establishes on extensive intertidal estuary zones. If uncontrolled, spartina can form dense stands completely replacing bare mud flats used by wading birds and flounders. Once spartina is established as the dominant vegetation it traps sediments, altering water courses and can eventually replace estuaries with grassland. In the

Bay of Plenty farmers have fenced areas and have introduced cattle to graze the spartina. Increased sedimentation in the New River Estuary near Invercargill was cited as a contributing cause if the Invercargill flooding event that occurred in 1988. The spartina infestation was in the order of 800 hectares at that time. Spartina infestation can completely eliminate wading bird habitat, whitebait fisheries, eel habitat, and flounder habitat. It affects recreational activities such as bird watching, kayaking white baiting and floundering, and, kai moana gathering by Iwi. In Canterbury spartina infestations have been largely removed and control is now at a scale of individual plants to small clumps.

Image. New River Estuary spartina infestation near Invercargill

Entire Marshwort – riverbeds/lakebeds

Entire marshwort is a perennial aquatic plant with roots in the bed of the water body and leaves that float on the surface. If uncontrolled it has the potential to choke waterways, deoxygenate the water, kill aquatic life and prevent recreational use.

African Feathergrass -

African feathergrass prefers moist locations and seed can be distributed via water. If uncontrolled the plant is very persistent and will form dense stands that will exclude all other plants.

Lagarosiphon – Lakebeds and Riverbeds

Lagarosiphon is an aquatic oxygen weed. It is a bottom rooted perennial, which can form mono-specific growths up to 5m tall and reach the surface. If uncontrolled it replaces native macrophytes and affects recreational use of rivers and lakes.

Egeria

Egeria is a submerged, bottom-rooted perennial, which can form mono-specific growths up to five metres tall upon reaching the water surface. It propagates through stem fragments being carried on water currents, boats, aquarium and pond escapes and deliberate planting. Egeria is abundant in the water bodies of the Waikato Region and is scattered throughout other water bodies in the North Island, with infestations recorded in Marlborough and Canterbury. The only known infestation still in existence in Canterbury is in the Kerrs Reach part of the Avon River in Christchurch. Two occurrences of this plant were found in 1999, one in a garden pond and the other in a pet shop fish tank. The plants were destroyed. If uncontrolled, egeria is a potential threat to the aquatic environment because it forms dense, mono-specific colonies. These, by definition, exclude other parts of the aquatic ecosystem, and it further slows water and wave movement and causes local deoxygenetion. While most slow moving water ecosystems are already heavily modified in New Zealand, it still represents a threat to the remaining biodiversity in these ecosystems. Egeria has the potential to clog waterways. Additional control costs will occur where the water carrying capacity of waterways needs to be maintained. The Christchurch City Council already operates weed cutters in the major waterways where egeria is an immediate threat, and estimates that its costs in respect of weed clearance will double if nothing were done to remove the weed. Egeria changes the visual amenity of slow moving water locations particularly when the weed reaches the surface of the water. Rotting weed thrown up on the shore can reduce the amenity values associated with those locations, and the build up of weed within the water body can limit the recreational opportunities available.

Wilding conifers

The description “wilding conifers” encompasses 25 species of wilding conifers present in Canterbury. Contorta pine, Corsican pine, Douglas fir, radiata pine, larch, Scots pine and mountain pine are the most common and widespread.

If uncontrolled wilding conifers replace native ecosystems, replace farmland and impact on landscape values and ecosystem services such as water yield. Some species of mountain pine are capable of seeding and establishing at altitudes over 2,000m. Few wilding conifer species are unwanted organisms. Species such as Douglas fir cannot be an unwanted organism because this species is both a valuable timber species and a wilding conifer. The Canterbury Regional Pest Management Strategy 2011- 2015 loosely encompasses all wilding conifer species as “introduced conifer species that are self sown or growing wild”

however only 3 are specifically mentioned. Other species of woody weed, like sycamore, cherry and hawthorn, are not mentioned at all

Carex – wetlands and riparian areas

Carex is a tall, exotic, shade tolerant, perennial sedge which grows in damp areas. It is the tallest growing sedge in New Zealand with stems up to 2.5m long. If uncontrolled carex will invade riparian margins and wetlands.

Puna Grass – riparian areas and grasslands

Puna grass is a tall tussock-like grass that grows up to 1m tall. If uncontrolled it will invade riparian margins and grasslands. Its distribution in Canterbury is limited but has the potential to be as bad a weed species as nassella tussock.

Russell Lupin - riverbeds

Russell lupin is a perennial that can grow up to 1.5m tall. If uncontrolled Russell lupin can invade Canterbury's braided riverbeds. This can impact on threatened native birds such as black stilt and wrybills.

APPENDIX 2

Willow control

Willows are normally controlled by drilling holes and applying herbicide. In recent years new herbicide formulations has meant aerial herbicide applications of willows has enabled large infestations to be controlled cost-effectively. In most instances dead willows are left to break down. At important sites such as high use recreation areas willows can be cut and removed or windrowed and burnt. All fragments of crack willow must be removed or new infestations will occur via fragments that have taken root. Both grey willow and crack willow are unwanted organisms

Wilding conifers

The main methods for wilding conifer control are felling, application of herbicide to the stem (basal bark application) and aerial herbicide application. Occasionally, larger stems are removed for timber production. This can cause site disturbance and thick reinfestation of wilding conifers. Research in the Marlborough Sounds on Pinus Radiata. shows that when mature wildings are felled light wells result in further wilding conifer seedlings. When trees are killed standing, by drilling stems and applying herbicide, low light and shelter results in native plant regeneration (provided deer and goats are also controlled) and no germination of wilding conifers. There is increasing recognition of the advantages of killing wilding conifers standing without disturbance associated with felling.

Spartina control

Manual control of spartina is limited to small patches less than 2 square metres. After this it becomes impractical and there is high risk of fragments being carried by tidal movements. Haloxyfop is an effective herbicide which can kill 99% of plants and has recently been approved for use by the Environmental Protection Agency. Spartina has been controlled at a number of sites with success in killing the infestations and the restoration of habitats. This was achieved when weeds broke down in situ. Spartina forms deep roots which can become active after disturbance. A recent Christchurch example is an increased abundance of spartina at McCormack's Bay following the Christchurch's earthquakes and liquefaction events. Physical or mechanical removal of spartina from fragile estuarine ecosystems is also likely to cause considerable environmental damage.

Other riparian weeds

A number of riparian weeds are controlled along fragile river and lake margins. Herbicide application results in minimal disturbance and effective kills. Removal of weed material would result in environmental damage to sensitive sites.

Aquatic weeds

Herbicide application is an effective way of controlling aquatic weeds. Weed beds are left to breakdown. Controls can be carried out if too much dead material would cause unacceptable adverse effects. The recent EPA decision on the use of a number of herbicides into or onto water places conditions places a number of conditions on herbicide applications. (see report on EPA website Application for the modified reassessment of aquatic herbicides APP201365).

Appendix 2 Environmental Protection Agency Decision approving the use of 4 herbicides onto or over water

Environmental Protection Authority
Te Mana Rauhī Taiao

DECISION

10 December 2012

1. Summary

Application code	APP201365
Application type	To reassess any hazardous substance under section 63A of the Hazardous Substances and New Organisms Act 1996 ("the Act")
Application sub-type	Modified reassessment
Applicant	The Agricultural Reassessment Group (ARG)
Purpose of the application	To seek the modification of controls on a number of substances containing haloxyfop-R-methyl, imazapyr isopropylamine, metsulfuron-methyl or triclopyr triethylamine as the active ingredient, to allow their use over water to control aquatic pest plants
Date application received	3 July 2012
Submission period	31 July 2012 –11 September 2012
Submissions received	28 submissions were received.
Hearing date and location	31 October 2012, Hamilton
Considered by	A decision- making committee of the Environmental Protection Authority (EPA): Shaun Ogilvie (Chair) Kerry Laing Louise Malone Val Orchard
Decision	The modified reassessment of the substances is approved with controls

2. Background

2.1. The Agricultural Reassessment Group (ARG) has applied for the modified reassessment of a number of substances containing metsulfuron-methyl, haloxyfop-R-methyl, imazapyr isopropylamine or triclopyr triethylamine salt.

2.2. The ARG comprises the Ministry for Primary Industries (MPI), Department of Conservation (DOC), Land Information New Zealand (LINZ), 12 Regional Councils and Mighty River Power (MRP).

2.3. The 13 approved substances included in this reassessment are listed in Table 1.

Table 1: List of approved substances

Name of Substance	HSNO Approval Number
Water dispersible granule containing 600 g/kg metsulfuron-methyl (Substance A)	HSR000232
Water dispersible granule containing 600 g/kg metsulfuron-methyl (Substance B)	HSR000242
Water dispersible granule containing 200 g/kg metsulfuron-methyl (Substance A)	HSR000238
Water dispersible granule containing 200 g/kg metsulfuron-methyl (Substance B)	HSR000245
Emulsifiable concentrate containing 100 g/litre haloxyfop-[(R)-isomer] as the methyl ester	HSR000373
Soluble concentrate containing 250 g/litre imazapyr as the isopropylamine salt	HSR000521
MSF 600	HSR000063
Ignite	HSR002431
Garlon 360	HSR007690
Scorp EC	HSR008025
Crest 520	HSR100054
Unimaz 250 SL	HSR100098
GF-2574	HSR100379

2.4. The ARG subsequently advised that GF-2574 was included in the application in error and they do not wish to pursue its modified reassessment. Consequently, the EPA treated this application as having been withdrawn.

2.5. Of the remaining 12 substances, 11 include controls which restrict or prohibit the application of the substances onto or into water[1]. The exception is Ignite, which has a control that states that the substance shall only be used as a herbicide.

[1] For the purpose of this approval, water is defined as surface water.

2.6. The ARG have sought the removal or modification of these controls to allow the substances to be applied onto or into water to control aquatic pest plants. The aquatic pest plants that may be controlled by these substance include, but are not limited to, the following:

- Alligator Weed;
- Californian Bulrush;
- Fringed Water Lily;
- Manchurian Wild Rice;
- Marshwort;
- Monkey Musk;
- Phragmites;
- Purple Loosestrife;
- Saltwater Paspalum;
- Sagittaria;
- Salvinia;
- Senegal Tea;
- Spartina;
- Water Hyacinth;
- Water Poppy; and
- Yellow Flag Iris.

2.7. Grounds for reassessment were established under section 62(2)(c) of the Act by the Environmental Protection Authority (EPA) in its decision dated 20 February 2012. Additional grounds for reassessment were established under section 62(2)(a) of the Act by the EPA in its decision dated 28 June 2012.

3. Process, consultation, submissions, hearing and site visit

Formal receipt and notification

3.1. The application was lodged by the ARG pursuant to section 63A of the Act on 3 July 2012. Following formal receipt, additional information about the proposed use patterns of the substances was requested by the EPA in accordance with section 52 of the Act. A timeframe waiver was applied (with the applicant's consent), in accordance with section 59 of the Act, to allow additional time for the applicant to respond to the information request. As a result, the requirement to publicly notify the application within 10 working days of receipt (section 59(1)(a) of the Act) was extended by 10 working days. Public notification occurred on 31 July 2012.

3.2. The Ministry of Business, Innovation and Employment (Labour Group), the Ministry for Primary Industries (ACVM Group), the Ministry of Health and the Department of Conservation were considered to be departments likely to have an interest in the application. Consequently they were notified of the application, in accordance with section 53(4)(b) of the Act, on 31 July 2012 and invited to comment by 11 September 2012. No comments were received.

3.3. An application summary was sent to a list of interested parties, as listed in Appendix A, who had indicated that they wished to be notified directly of this type of application.

3.4. The application was also publicly notified on the EPA website on 31 July 2012 and subsequently advertised in the Dominion Post, the New Zealand Herald, the Christchurch Press, the Otago Daily Times, Northern Advocate, Northland Age and the Waikato Times on 1 August 2012.

Submissions

3.5. Twenty-eight submissions were received. Eight parties requested to be heard at a hearing. A summary of submissions can be found in Appendix B of the EPA Staff Evaluation and Review (E&R) Report. The response from the ARG to the submissions can be found in Appendix C to the E&R Report.

Pre-hearing waiver

3.6. The ARG applied to waive the requirement to hold a hearing not more than 30 working days after the close of submissions. All submitters were contacted to seek their consent to the waiver, with 19 submitters (including all eight parties who had indicated they wished to be heard) indicating their consent. No submitters indicated that they had any objection to the waiver. As a result, the requirement to commence a hearing no more than 30 working days after the close of submissions (section 59(1)(d) of the Act) was extended by five working days.

Reports

3.7. The staff of the EPA ("the staff") prepared an EPA Staff Evaluation & Review (E&R) Report to aid the Committee in its decision-making process. The E&R Report is the staff review of the application and assessment of the potential risks, costs and benefits to human health, the environment, Māori, society and community, and the market economy. It also included an evaluation of the controls that might be implemented in order to manage the risks posed by the proposed reassessment. The E&R Report was circulated to the Committee, submitters and the applicant on 16 October 2012.

3.8. Nga Kaihautu Tikanga Taiao[2] (NKTT) prepared a report to aid the Committee in its decision-making process for this application. This intention of this report is to provide advice and assistance from a Māori perspective. This report was also circulated to the Committee, submitters and the applicant on 16 October 2012.

Further information

3.9. Prior to the hearing, further information was provided and circulated from the following additional parties:

- William Chisholm on behalf of the North Island Eel Enhancement Company and the South Island Eel Industry Association (24 October 2012);

[2] Nga Kaihautu Tikanga Taiao are a statutory committee that advises the EPA on Māori issues.

- Poto Davies on behalf of Ngāti Koroki Kahukura Trust (25 October 2012);
- Angus McKenzie, Veronica Herrera, Keith Briden, John Simmons and Paul Champion on behalf of the Agricultural Reassessment Group (25 October 2012);
- Revised proposed controls from the EPA project team (29 October 2012);
- Don McLeod on behalf of the National Beekeepers Association (29 October 2012);
- Malibu Hamilton on behalf of Te Ngaru Roa ā Maui (29 October 2012);
- Jackie Pou (29 October 2012); and
- Robert Tait and Raewyn Sendles on behalf of Friends of the Earth NZ (30 October 2012).

3.10. Copies of this information are available on the EPA website.

3.11. Section 58(2) of the Act states that where the Authority obtains further information, the Authority, at least 10 working days before commencement of the hearing, shall notify the applicant and every person who made a submission that the information is available for inspection. The Committee waived this requirement to allow the further information that was provided and circulated less than 10 working days prior to the hearing to be considered.

Hearing

3.12. In accordance with section 60 of the Act, a hearing was held on 31 October 2012 in Hamilton. The following parties presented their submissions:

- John Simmons, Angus McKenzie, Veronica Herrera, Keith Briden and Paul Champion on behalf of the Agricultural Reassessment Group;
- Don McLeod on behalf of the National Beekeepers Association;
- Malibu Hamilton on behalf of Te Ngaru Roa ā Maui;
- Te Tui Hoterene on behalf of Nga Tirairaka o Ngati Hine;
- William Chisholm on behalf of the North Island Eel Enhancement Company and the South Island Eel Industry Association;
- Robert Tait and Raewyn Sendles on behalf of Friends of the Earth NZ; and
- Poto Davies on behalf of Ngāti Koroki Kahukura Trust (25 October 2012).

3.13. In addition, the EPA staff and NKTT presented their reports to the Committee.

The Agrichemical Reassessment Group (ARG)

3.14. John Simmons (Waikato Regional Council (WRC)) expressed his thanks for the decision to hold the hearing in Hamilton and stated that he considered this was to the advantage of both the applicant and submitters. He also noted the importance of the application to the ARG.

3.15. Angus McKenzie (Latitude Planning Services Ltd, consultant) introduced the application on behalf of the ARG, during which he endorsed the removal of GF-2574 from the list of substances to be considered. He also endorsed the control-led approach proposed by the EPA staff in the E&R Report. He indicated that the ARG largely supported the revised controls proposed by the EPA staff in the further information circulated on 29 October 2012, but wished to table some minor comments. He also acknowledged that the process for the issuing of permissions was separate to the consideration process for the modified reassessment.

3.16. Veronica Herrera (Ministry for Primary Industries) discussed the strategic need for aquatic weed control across New Zealand and the need to ensure the availability of a wide range of effective and efficient control tools. She noted that a number of the pest plant species targeted by the chemicals in this application are subject to National Interest Pest Response Plans due to their potential impact on primary production, the environment, social and cultural values and human health.

3.17. Keith Briden (Department of Conservation) discussed the responsibilities of his organisation including protecting and preserving the conservation estate, with the main threats to New Zealand's biodiversity being due to introduced weeds and animal pests. He noted that DoC also discharges responsibilities, on behalf of the government, relating to the Convention for Biological Diversity and the Convention for Wetlands (Ramsar). These involve the protection of biodiversity and wetlands. Mr Briden also spoke about the risks associated with alternative means of weed control, including alternative chemicals and noted that the application did not preclude the use of alternative control methods. He concluded, however, that in a lot of situations the use of the chemicals included in this application was the only viable solution for aquatic weed eradication/control.

3.18. In response to a question from the Committee, Mr Briden confirmed the existence within DoC of standard operating procedures for the application of the different substances to different target weeds and the existence of databases that record the use of the substances by DoC staff.

3.19. John Simmons (WRC) spoke of the need for Regional Councils to have an adequate tool box to draw on to implement control measures for aquatic weeds identified in Regional Pest Management Plans (RPMP). He highlighted that RPMP are developed via a consultative process with the regional communities looking at many aspects including environmental, economic, cultural and social aspects. Development of strategies is driven by cost/benefit analysis, and any plan that is put in place must be cost effective.

3.20. In response to questions from the Committee, Mr Simmons submitted that under previous legislation the application of the substances included in this reassessment onto or into water was permitted and that the historical non-compliance by councils with the Hazardous Substances and New Organisms (HSNO) Act was unintentional. He noted that as soon as the regional councils became aware of their non compliance with HSNO they started the process of making an application for reassessment to the EPA. He considered that the Committee should be assured that any controls imposed as part of the

reassessment would be complied with by the councils and other members of the ARG. It was also noted that during the time of non-compliance with HSNO the use of the substances onto or into water was regulated by resource consents that had a number of conditions including application rate restrictions, monitoring requirements, consultation requirements, timing restrictions, suite notification requirements and requirements to discuss the application in sensitive areas with relevant parties.

3.21. Paul Champion (National Institute of Water and Atmosphere) provided information about some of the aquatic pest plant species which are targeted by the chemicals in the application. He also discussed some of the successful eradication and restoration programmes that have been conducted using the substances included in the application. The Committee noted that these success stories were particularly useful and the application would have benefited from the earlier introduction of this information.

3.22. Mr Champion also summarised the ARG's view of the toxicity and ecotoxicity of the substances included in the application and commented on the proposed controls. In his discussion, Mr Champion referred to the existence of a number of reports for monitoring activities that had been conducted during past application of the substance onto or into water. The Committee noted the absence of this information from that made available to the EPA.

3.23. In response to an additional question from the Committee, Mr Champion indicated that he considered the risk to the environment from the release of the substances from decaying material was very low, although he acknowledged that there was a data gap relating to the impact of the substances or their degradation products on benthic (sediment dwelling) organisms in the environment.

3.24. Mr McKenzie addressed some of the other issues raised by submitters, including controls on surfactants, the impact of historic non-compliance, consultation, cultural impacts and economic impacts. Mr McKenzie mentioned consultation/notification requirements required by the Resource Management Act (RMA) 1991 and offered to provide as an example the draft set of conditions for a recent Resource Consent application in the Waikato.

3.25. Mr McKenzie discussed the modifications to the controls proposed by the ARG, including the addition of an annual reporting control which the ARG considered would help fill some of the data gaps identified by the EPA and submitters as well as help address issues of public perception.

Nga Kaihautu Tikanga Taiao (NKTT)

3.26. Dr Nick Roskruge presented the NKTT Report for the application. He highlighted NKTT's concern about the data gaps on impacts of these substances to flora and fauna and the importance of water to Māori from a spiritual and cultural perspective. He also discussed issues relating to sedimentation and the introduction of new non-native biological controls into New Zealand as an alternative to chemical control. He noted that continual and timely consultation with iwi was the best approach to

developing a relationship with iwi regarding application of the substances to water in their areas. In response to a question from the floor, Mr Roskruge acknowledged the range of factors that may impact on the maramataka[3], including the impact of chemicals. He noted that the effects should be considered in the wider context of mātauranga Māori[4].

EPA Staff

3.27. Haydn Murdoch presented the E&R Report and discussed the revised controls proposed by the EPA. In response to a question from the floor, it was clarified that the international use pattern for some of the substances included aerial application over water. The EPA staff advised that Safety Data Sheets (SDS) should reflect HSNO restrictions; therefore the current restrictions on SDS that the substances should not be used on water (as highlighted by some submitters) would need to be revised to allow use on water should application of the substances onto or into water be permitted under HSNO.

National Beekeepers Association of New Zealand

3.28. Don McLeod discussed the importance of bees to New Zealand and identified the need to assess the risks to bees from all components of the spray tank, including the surfactants that may be added as adjuvants to the herbicidal products.

Te Ngaru Roa a Maui (TNRM)

3.29. Malibu Hamilton raised concerns in relation to the use of the substances that form the basis of the application, in particular the effects on Maori traditional and cultural practices. He also expressed concerns about the impacts to inanga, elvers, kaimoana and non-target species, especially where data gaps lead to greater levels of uncertainty. This included a lack of information about the potential sub-lethal effects to kaimoana and mahinga kai along with potential human health effects.

3.30. Mr Hamilton submitted that the set of cultural indicators used in the Cultural Impact Assessment produced by Ngati Hine should be viewed as providing information that would need to be considered and weighed not only in the rohe as described, but as an indicator over many hapu areas, particularly those with similar landscapes. He also raised issues with consultation that has been carried out in the past, relating to the application activities under the RMA and requested that members of the ARG make sure that, in the future, potentially affected iwi or hapu are identified and engaged in ongoing consultation and relationship building. TNRM support the requirement for controls, including permissions and annual reporting.

[3] Māori fishing guide

[4] Māori knowledge - the body of knowledge originating from Māori ancestors, including the Māori world view and perspectives, Māori creativity and cultural practices.

Friends of the Earth New Zealand (FoE)

3.31. Raewyn Sendles discussed the court case between Northland Regional Council and Skywork Helicopters Ltd which involved the alleged accidental spray over water of triclopyr. As a result of this incident, $300,000 of organic crops that used irrigation water taken from the waterway were destroyed. She also noted the persistence of triclopyr in the aquatic environment and discussed concerns about the potential long-term environmental effects and human health effects associated with the substances included in the application.

3.32. Bob Tait expressed concerns about the lack of data available on the effects of the substances and the need to take a precautionary approach to consideration of the application. He also questioned the consultation that was conducted with interested parties, noting that it appeared Horticulture New Zealand had not been consulted with. He also mentioned Watercare Services Ltd, Auckland District Health Board and Medical Officer of Health as interested parties who should have been consulted. Mr Tait expressed concern about the adequacy of the proposed monitoring requirements and inadequate consideration of alternative methods of pest plant control.

3.33. The Committee acknowledged the late receipt of information from FoE and confirmed that no parties to the hearing objected to the consideration of this information.

3.34. In response to the claims about consultation made by FoE, the EPA staff advised that while Horticulture New Zealand were not listed in the notified parties list, their communications team were contacted by the communications team at the EPA prior to public notification of the application. Consultation was also undertaken with Auckland Council to whom Watercare Services Ltd provide services. The EPA also notified the MoH of the application.

3.35. The EPA noted it was not always possible to identify and establish contacts with all parties who may be interested in an application, hence the decision was made to place public notices in the Dominion Post, the New Zealand Herald, the Christchurch Press, the Otago Daily Times, Northern Advocate, Northland Age and the Waikato Times. The EPA noted that this was how FoE became aware of the application.

South Island Eel Industry Association and North Island eel Enhancement Company

3.36. William (Bill) Chisholm discussed their concerns about the risks of the substances to the eel industry, especially in relation to the possibility of unacceptable residue levels in eels intended for export. He reiterated his industry's concern about the persistence of metsulfuron-methyl. In addition, he noted that, from his experience, permissions were a poorly performing tool. He was concerned that permissions were a form of policy duck-shoving, i.e. not making a definite decision today, and instead delegating it to some other decision-making process in the future. He also discussed the difference

between control and eradication programmes. Mr Chisholm suggested that information about what substances were being used on what pest plant species and details of eradication programmes should be made more readily available to the public.

3.37. In response to a question from the Committee, Mr Chisholm said that the only local issues he considered would need to be addressed in a Permission would be the particular plant species to be controlled, the area that it occupies and the specific herbicide going to be applied. All other issues should be addressed on a national basis via controls on the approval.

Nga Tirairaka o Ngati Hine

3.38. Te Tui Hoterene (Tui) discussed the potential impact of the use of the substances on their Tikanga-based relationship with the environment. She referred to the requirements of the Convention on Biological Diversity (CBD) that parties to the convention shall protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements. Ms Hoterene also spoke about her people and the environment in which they live. She highlighted the need for full and effective participation and engagement with her people during any permission process and their involvement in monitoring programmes.

3.39. In response to a question from the Committee, Ms Hoterene advised that rather than the use of signs, the best way to communicate restrictions on the use of waterways post application of the substances, was to engage with iwi representatives early in the process, so that they could identify and advise members of their iwi about any restrictions that may apply.

Ngati Koroki Kahukura Trust

3.40. Poto Davies explained her people's relationship with their waterways and environment. She expressed her concern about the impact of the substances on their environment, especially the potential impact on tuna (eels) and other mahinga kai (traditional food and other resources). While she acknowledged the need for aquatic pest plant control, she supported alternative non-toxic methods (e.g. the use of grass carp). Should the application of the substances onto or into water be approved, the need for monitoring and use of suitably trained applicators was expressed as being necessary.

Additional questions from the Committee

3.41. The control relating to restrictions on the application area of a static water body was discussed in relation to dissolved oxygen levels. The ARG responded that although the restrictions would make their operations more difficult, they were necessary and could be worked with. They also confirmed that measurement of dissolved oxygen levels was relatively easy to achieve.

3.42. The ARG were asked if local eradication was a biological reality for of any of the weeds. Mr Champion responded that it was, and that they had a number of examples of both national eradication and locations where this had been achieved for certain weeds using the substances included in this application.

3.43. The ARG confirmed that metsulfuron-methyl was first available in New Zealand in the 1980s, haloxyfop was first used in the early 1990s, triclopyr wasn't registered in New Zealand until 2007 and imazapyr had only been available over the past few years.

3.44. The ARG confirmed the need to carry out surveillance activities during the summer, including in November when whitebait and elvers would be migrating. These activities could involve applying small quantities of the substances to any small patches of weeds at the time of identification to ensure the success of eradication programmes. This is the basis for the requested dispensation on the migration control for the protection of whitebait and elvers.

Applicants' Right of Reply

3.45. The ARG indicated that should the application be approved, that they would undertake a number of workshops to communicate the controls robustly to operators. This would involve the production of a fact sheet which would outline the controls and how to use the various herbicides.

3.46. The ARG acknowledged the need for adequate consultation and engagement with iwi and agreed to work with the EPA in the development of permission conditions to reflect this requirement.

3.47. In response to the Committee's question about whether all four active ingredients were necessary or whether there were any they could do without, the ARG responded that all four were required. Many of the substances provide selectivity that targeted the weeds and avoided non-target damage to desirable plants.

3.48. The ARG reiterated the strategic need for aquatic weed control and the need to maintain the availability of chemical controls in the control toolbox. The ARG consider that the risks identified by the EPA and submitters would be adequately managed by the proposed approval controls and permission conditions.

Hearing Adjournment

3.49. The Committee wishes to thank the applicant group, submitters, NKTT and the EPA staff for their input during the hearing, which greatly assisted it in reaching its decision.

3.50. The hearing was adjourned on the afternoon of 31 October 2012.

Site visit

3.51. On 1 November 2012, the Committee visited a number of sites in and around Hamilton where aquatic weeds were present. The visit was hosted by staff of the Waikato Regional Council and was intended to provide context to the Committee.

Additional information request

3.52. In accordance with section 61 of the Act, the Committee requested additional information from the ARG relating to the draft consultation/engagement provisions within the draft Regional Consent for Waikato. This information was provided by the ARG on 19 November 2012.

4. Consideration

4.1. In considering this application the Committee took into account:

- The application form;
- The submissions;
- The applicant's response to the submissions;
- The E&R Report;
- The NKTT Report;
- Further information supplied by submitters and the applicant;
- The oral presentations at the hearing; and
- The draft consultation/engagement provisions within the draft Regional Consent for Waikato.

The requirements of section 63A of the Act

4.2. Under section 63A(1) of the Act, a modified reassessment may be carried out where the reassessment will involve only a specific aspect of an approval and the proposed amendment is not a minor or technical amendment to which section 67A of the Act applies.

4.3. The Committee considers that–

(a) a reassessment of the substances under section 63 of the Act is not appropriate because the reassessment will involve only a specific aspect of the approvals (i.e. the prohibition or restriction of application of the substances onto or into water); and

(b) the amendment is not a "minor in effect" or minor or technical amendment to which section 67A of the Act applies (i.e. allowing the application of the substances onto or into water is not considered a minor in effect or minor or technical amendment, as the removal of the restriction may result in a significant increase in risks, especially in the aquatic environment).

4.4. Under section 63A(6) of the Act, the EPA may approve or decline an application for reassessment under section 63A of the Act, as it considers appropriate, after taking into account:

(a) all the effects associated with the reassessment; and

(b) the best international practices and standards for the safe management of hazardous substances.

5. Assessment of the effects associated with the reassessment

5.1. The Committee notes that the staff undertook an assessment of the risks, costs and benefits associated with the reassessment.

Risk assessment

5.2. The staff have undertaken a quantitative and qualitative risk assessment of the human health and environmental effects associated with application of the substances into or onto water. A summary of this assessment is provided below in Tables 2 and 3. The detailed assessment is included in Appendix D to the E&R Report.

5.3. The risk assessment was confined to the application of the substances onto or into water, as the risks to human health and the environment associated with the remaining lifecycle stages of the substances were addressed during the original approval of the substances for terrestrial weed control.

5.4. The risk assessment considered the risks relating to the active ingredients of the substances as well as other components of the substances where relevant. Nonyl phenol ethoxylates are considered particularly hazardous to the aquatic environment, therefore the presence of nonyl phenol ethoxylates in a formulation was considered relevant to the risks of the substances to the aquatic environment and hence these potential components were included in the environmental risk assessment. This is consistent with the actions of other international regulators.

Table 2: Assessment of risks to human health from application of the substances onto or into water.

	Metsulfuron-methyl	Haloxyfop-R-methyl	Imazapyr isopropylamine	Triclopyr triethylamine	Formulations
Risks to swimmers	Negligible	Negligible	Negligible	Negligible	Non-negligible. There may be acute risks due to the presence

					of hot-spots within the treatment area[5].
Risks from drinking treated surface water	Non-negligible	Non-negligible	Non-negligible	Non-negligible	Non-negligible.
Risks from fish consumption	Unknown	Unknown	Negligible	Negligible	Unknown

Table 3: Assessment of risks to the environment from application of the substances onto or into water.

	Metsulfuron-methyl	Haloxyfop-R-methyl	Imazapyr isopropylamine	Triclopyr triethylamine	Nonylphenol ethoxylates	Formulations
Risks to aquatic organisms	High risks to fish, aquatic invertebrates and non-target aquatic plants at low rates of interception	High risks to fish, aquatic invertebrates and non-target aquatic plants	High risks to fish, aquatic invertebrates and non-target aquatic plants	High risks to non-target aquatic plants	Very high risks	Insufficient data to assess
Risks to sediment living organisms	Insufficient data to assess	Risks identified for similar compound (haloxyfop-ethoxyethyl)	Insufficient data to assess	Insufficient data to assess	Insufficient data to assess	Insufficient data to assess
Risks to terrestrial plants from irrigation water	High risks	High risks	High risks	High risks	Insufficient data to assess	High risks

[5] The treatment area is the immediate area surrounding the aquatic pest plants to which the substances have been applied.

5.5. The potential effects on the relationship of Māori to the environment were also assessed in accordance with clauses 9(b)(i) and 9(c)(iv) of the Methodology and sections 6(d) and 8 of the HSNO Act. A summary of this assessment is provided below in Table 4. The full assessment is included in Appendix D to the E&R Report.

Table 4: Summary of effects on relationship of Maori to the Environment

	Consultation and Engagement with iwi/ Māori	**Mātauranga and Tikanga Māori**	**Kaitiakitanga**	**Taha Hauora**	**Principles of Treaty of Waitangi (Tiriti o Waitangi)**
Assessment	Use of permission control will address concerns	Non-negligible risk	Non-negligible risk	Non-negligible risk	Non-negligible risk

5.6. The Committee notes that the information provided by the applicant included a number of data gaps and therefore the EPA staff were unable to undertake a comprehensive assessment of the impacts of the application of the substances onto or into water. In particular, the Committee notes that there is a lack of data on any chronic or long term effects of the substances and their formulations in the aquatic environment and this restricted the assessment. This is especially the case for benthic (sediment dwelling) organisms.

5.7. Where there is scientific uncertainty about adverse effects, the Committee is required to take into account the need for caution in managing those effects.[6] The Committee must also balance the adverse effects against the benefits associated with the application of these substances onto or into water, which includes consideration of the adverse effects on the environment caused by the presence of pest plants.

5.8. Based on these assessments, the Committee considers that additional controls are necessary to manage the identified non-negligible risks to human health, the environment and the relationship between Maori and the environment and the uncertainty associated with the effects of the application of the substances onto or into water.

[6] Section 7 of the Act

International Obligations

5.9. The staff undertook an assessment of the risks to New Zealand's international obligations. The staff identified the Convention on Biological Diversity 1992 and the Ramsar Convention 1971 as being relevant to this application. The Committee considers that the use of the substances included in this application for control of aquatic pest plants will support New Zealand's commitment to these conventions.

Benefit assessment

5.10. The Committee notes that the applicant and submitters identified a number of benefits associated with aquatic weed control and these are summarised below:

- Enhancing and maintaining biodiversity where pest plant monocultures threaten vulnerable habitats.
- Reducing the impact of aquatic pest plants on agricultural production where the plants are able to spread from water onto land.
- Reducing the impact on irrigation systems.
- Reducing the impact on flood control schemes.
- Reducing the impacts on commercial and recreational fisheries.
- Protection of power generating infrastructure.
- Managing impacts on tourism activities such as jet boating, diving and kayaking.
- Reducing the impact on social, recreational and cultural practices.

5.11. The Committee considers that these benefits are very likely to be realised through the control of aquatic pest plants. The Committee also considers that the magnitude of the benefits will be high. Consequently, it is considered that there will be significant benefits to New Zealand from the control of aquatic pest plants.

5.12. The Committee notes that the applicant and the submitters provided information about a number of alternative means of pest plant control and that these had a number of advantages and disadvantages. These included the following:

- Mechanical removal. This method typically involves an excavator removing the plant from its location and disposing of it at an appropriate site. This method has proven to be impractical in many cases due to the aquatic nature of sites and limited access. In addition there are a number of risks associated with mechanical removal, including:
    - Increased risk of seed and plant fragment spread downstream when infestations are not fully cleared;

- Increased risk of plant spread through contaminated machinery;
- Health and safety risks to machinery operators; and
- Risk of pest plants appearing and spreading from disposal sites.

- Manual removal. Hand weeding is useful in controlling small, localised infestations where the treatment area does not exceed one square metre. Beyond small scale infestations, manual removal is very resource intensive and also carries a number of risks, including:
  - Increased risk of plant spread through fragments and seeds on equipment; and
  - Health and safety risks to personnel in aquatic environments.

- Agrichemical control. There are a limited range of substances approved for application into or over water for the control of aquatic pest plants. Both diquat and endothal- based substances are specifically used for the control of submerged aquatic pest plant species and are not suitable for aquatic pest plants that inhabit the surface of the waterways. Glyphosate- based agrichemicals are approved for use over water but have been found to be less effective in the control of aquatic pest plants, often requiring several spray applications before taking effect. Glyphosate is particularly ineffective in the control of aquatic pest plants such as alligator weed, Manchurian wild rice, Senegal tea and spartina.

- Biological control agents. These were raised as an alternative means of pest plant control by submitters. The applicant responded that, to date, only one biological control agent had been introduced for any of the pest plant species targeted in this application and that it had resulted in only temporary control in aquatic areas affected by this plant. The applicant submitted that biocontrol rarely, if ever, was a useful eradication tool.

5.13. The Committee is satisfied that agrichemical control, using the substances in this application, is more likely to achieve the benefits of controlling aquatic pest plants than other means of controlling aquatic pest plants. It therefore concludes that there will be significant benefits to New Zealand from the application of the substances onto or into water.

Overall assessment of risks and benefits

5.14. The Committee considers that the significant benefits would be likely to outweigh the adverse effects.

6. Controls

6.1. When the substances were originally approved for terrestrial use by the EPA, a set of controls was applied to each substance. These controls form the basis of the controls set out as Appendix A, attached to and forming part of this decision. As a result of the evaluation of the effects of application onto or into water, including consideration of information provided by the applicant and submitters, the following exposure limits and modifications to the controls on the substances are applied to the approvals of the substances.

The setting of exposure limits

6.2. Tolerable Exposure Limits (TELs) can be set to control hazardous substances entering the environment in quantities sufficient to present a risk to people. Application of the substances included in this reassessment onto or into water may result in the presence of the substances in drinking water at levels which are likely to cause adverse effects to human health. The Committee considers it is necessary to restrict the concentration of the substances that may be present in drinking water to protect human health. The ARG acknowledged the need for this protection. The Committee considered information about the toxicity of each of the different substances and derived values that are considered protective of human health. Consequently the TEL values specified in Table 5 are set for the relevant components of the substances included in this application:

Table 5: TEL values

	Metsulfuron-methyl	Haloxyfop-R-methyl	Imazapyr isopropylamine	Triclopyr triethylamine
$TEL_{DRINKINGWATER}$	0.04 mg/L	0.0021 mg/L	9 mg/L	0.1 mg/L

6.3. Environmental Exposure Limits (EELs) can be set to control hazardous substances entering the environment in quantities sufficient to present a risk to organisms within the environment. Application of the substances included in this reassessment onto or into water may result in the presence of the substances in water at levels which are likely to cause adverse effects to aquatic organisms and other parts of the environment. The Committee considers it is necessary to restrict the concentration of the substances that may be present in water to protect the environment. A number of submitters also identified the need to protect non-target organisms in the environment from exposure to harmful levels of the substances. The Committee considered information about the ecotoxicity of each of the different substances and derived values that are considered protective of the environment. Consequently the EEL values specified in Table 6 are set for the relevant components of the substances included in this application:

Table 6: EEL values

	Metsulfuron-methyl	Haloxyfop-R-methyl	Imazapyr isopropylamine	Triclopyr triethylamine
EEL_{WATER}	0.0084 µg/L	0.884 µg/L	0.18 µg/L	59 µg/L

6.4. Application rates can be set for ecotoxic substances that are to be sprayed on an area of land (or air or water) for which an EEL has been set. These rates are set to minimise the adverse effects caused by the presence of the substances in the environment. The staff considered the rates specified by the ARG in their application and used these as the maximum rates within its quantitative risk assessment (see Appendix D of the E& R Report). Subsequently the ARG requested that the application frequency for haloxyfop-R-methyl, imazapyr isopropylamine and triclopyr triethylamine be increased from two to

three times per year. The ARG argued that this increase in application frequency was necessary to ensure the effectiveness of eradication programmes involving the target pest plants. The Committee noted that allowing three applications within one year may result in local eradication of the target weed and reduce the need for additional applications in that area in subsequent years, thereby decreasing the overall usage of the substance in the area and reducing the long-term impact of the substances on the environment. The staff also confirmed that the increase in application frequency would not invalidate the quantitative assessment that was conducted. On this basis, the Committee accepted the increase in application frequency. Consequently, the maximum application rates specified in Table 7 are set for the relevant components of the substances included in this application, when those substances are applied into or onto water.

Table 7: Maximum application rates

	Metsulfuron-methyl	Haloxyfop-R-Methyl	Imazapyr isopropylamine	Triclopyr triethylamine
Maximum Application Rate	0.084 kg ai/ha	0.75 kg ai/ha	2 kg ai/ha	7.92 kg ai/ha
Maximum Application Frequency	Three times per year	Three times per year	Three times per year	Three times per year
Minimum Application Interval	30 days	30 days	30 days	30 days

Modifications to the controls

Permissions

6.5. The Committee considers that limiting who may apply the substances onto or into water, where, and under what circumstances will help manage the potential risks associated with the application of the substances onto or into water, take account of local conditions and tailor use accordingly. The Committee considers that the substances should only be applied into or onto water to manage certain aquatic pest plants and that application of the substances should only be conducted by permitted organisations. The Committee notes that this approach is supported by the applicant group and a number of submitters. In recognition of this, the Committee considers that the requirement to obtain a permission under section 95A to apply the substances onto or into water is warranted.

6.6. The Committee further notes that requiring users to obtain a permission under section 95A will help to ensure that relevant site-specific considerations about the application of the substances onto or into water can be addressed via conditions on the permission. Examples of conditions on any permission may include local notification requirements, identification of the target aquatic pest plant(s), details of the operation that are to be notified, and parameters for monitoring requirements.

6.7. The Committee is satisfied that permissions tailored to local conditions would be more effective in terms of its effect on the management, use and risks of the substances than other controls which impose generic requirements to manage these risks[7]. Therefore, the following control will apply to the approval of the substances:

A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.

Approved Handlers

6.8. The current controls for some of the substances included in this application include requirements for the substances to be under the personal control of an approved handler during wide dispersive use or use of the substances by commercial contractors. The Committee considers that this should be extended to include a requirement that the substances be under the personal control of an approved handler during any application of the substances into or onto water. Accordingly, the following control has been substituted for Regulation 9(1) of the Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001:

"(1). This substance must be under the personal control of an approved handler when the substance is –

(a) applied in a wide dispersive manner;

(b) used by a commercial contractor; or

(c) applied onto or into water"

The substances "Emulsifiable concentrate containing 100 g/litre haloxyfop-R-isomer as the methyl ester", Ignite and Scorp EC are classified as 9.1B aquatic ecotoxicants. This means that there is no default requirement for the substances to be under the control of an approved handler.[8] However, a requirement for these substances to be under the control of an approved handler is a control on the current approvals for these substances when applied onto land. The Committee considers that this requirement should also apply when the substance is being applied into or onto water. In particular, the lack of chronic aquatic organism data for the substances means that the adverse effects of the substances may be greater than the known adverse effects of the substances[9] and justifies the approved handler control for application of the substances onto or into water. Thus the following control has been added to the approvals of Emulsifiable concentrate containing 100 g/litre haloxyfop-R-isomer as the methyl ester", Ignite and Scorp EC:

"(1). This substance must be under the personal control of an approved handler when the substance is –

(a) applied in a wide dispersive manner;

[7] In accordance with section 77A(4) of the Act.
[8] "Default requirement" means a control from the regulations imposed by virtue of its hazard classification under s 77 of the Act.
[9] section 77(3)(a) of the Act

(b) used by a commercial contractor; or

(c) applied onto or into water.

(2) However, the substance may be handled by a person who is not an approved handler if–

(a) an approved handler is present at the place where the substance is being handled; and

(b) the approved handler has provided guidance to the person in respect of the handling; and

(c) the approved handler is available at all times to provide assistance, if necessary, to the person while the substance is being handled by the person.

(3) Clause (1) is deemed to be complied with if, in the case of the aerial application of the substance, the person who carries out the application has a current pilot chemical rating in accordance with Part 61 of the Civil Aviation Rules".

6.9. In addition, the Committee considers that, in order to minimise potential non-target impacts in the aquatic environment, any person who intends to apply the substances into or onto water should either have received specific training in the application of pesticides onto or into water or be under the direct supervision of someone who has received this training. A number of submitters, including Ngati Koroki Kahukura Trust and Friends of the Earth New Zealand, expressed the need for persons applying the substances onto or into water to receive specialised training. The Committee is satisfied that requiring specific training would be more likely to achieve its purpose than the approved handler control on its own, in terms of its effect on the management, use and risks of the substances. Accordingly, the following control is applied to the substances:

This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Protection of Aquatic Farms

6.10. The Committee considers that there may be significant risks to aquatic farms where food is produced if the aquatic farms come into contact with water containing the substances. The aquatic farms may be damaged by the substances resulting in economic loss to the aquatic farmer. The Committee considers that it is necessary to provide controls to protect aquatic farms. The Committee considers that the following control would be more effective in terms of its effect on the management, use and risks of the substances in relation to aquatic farms than setting the EEL water alone:

A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.

Guidance Note: Methods of meeting this requirement may include, but are not limited to, the use of buffer zones around aquatic farms or discussions with aquatic farmers in or near the treatment area to ensure the substance is not applied when aquatic farms are the most vulnerable to damage.

6.11. The Committee also notes that there are risks associated with the consumption of food that may contain residues of the substance. These risks and controls are discussed later in the section of signage.

Irrigation Water

6.12. The Committee considers that there may be significant risks to non-target plants and crops if the substances are present at sufficient concentrations in water used for irrigation. This concern was also raised by the Friends of the Earth at the hearing. It is, therefore, considered necessary to impose restrictions on water used for irrigation. The Committee considers that the following control would be more effective in terms of its effect on the management, use and risks of the substances in relation to irrigation water than setting the EEL water alone:

A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.

Guidance Note: Methods of meeting this requirement may include, but are not limited to, the use of buffer zones around water intakes used for irrigation or discussions with irrigation water users to ensure that any irrigation water that may be contaminated with the substance is not applied onto vulnerable crops.

Signage

6.13. The Committee considers that there may be significant risks to the health of people who swim, gather food or take water for consumption from within the treatment area immediately after application of the substances. The Committee notes that some communities take water for drinking and exercise customary rights over mahinga kai and so need to be protected from consuming water and food containing unacceptable levels of the substances. It is, therefore, considered necessary to erect signs to warn people not to swim, gather food or take water for consumption within the treatment area for a period of time after application of the substance. This time period will differ depending on the identity of the substance and the nature of the water body to which the substance is being applied. The Committee is satisfied that requiring specific signage requirements would be more likely to achieve their purpose than the standard signage controls on their own, in terms of its effect on the management, use and risks of the substances. Accordingly, the following controls are applied to the substances:

<u>For substances containing haloxyfop-R-methyl or triclopyr triethylamine:</u>

A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following:

- *Do not swim;*

- *Do not gather food from the waterway (including fish); and*
- *Do not take water for consumption.*

The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application, where application of the substance is to a flowing water body, and for 21 days after application where application of the substance is to a static water body[10]*. The signs must be removed after five days or 21 days, respectively. The signs must be capable of being read at a distance of at least five metres during daylight hours.*

For substances containing metsulfuron-methyl or imazapyr isopropylamine:

A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following:

- *Do not swim;*
- *Do not gather food from the waterway (including fish); and*
- *Do not take water for consumption.*

The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application. The signs must be removed at the end of this period. The signs must be capable of being read at a distance of at least five metres during daylight hours.

Notification

6.14. Given the level of interest in the use of the substances onto or into water and the potential impacts on the wider community, the Committee considers that a requirement to notify any parties who may be potentially directly affected prior to application of the substances onto or into water is necessary. A number of submitters raised this as an issue in both their submissions and at the hearing. The Committee notes that the specific parties to be notified may be identified via a condition in any permission issued for the use of the substances onto or into water. The Committee considers that the following control would be more likely to achieve its purpose than the standard identification controls, in terms of its effect on the management, use and risks of the substances:

A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.

[10] A static water body is any water body with standing or slow moving water such as a lake or a pond

6.15. The Committee notes that aerial application may be required to treat large areas of aquatic weeds. The Committee recommends that where aerial operations are necessary, particular attention is paid to community engagement and consultation prior to use to help to manage their concerns.

Migration

6.16. The Committee considers that there may be significant risks to whitebait and elvers from application of substances containing haloxyfop-R-methyl onto or into water. This is most relevant during their migrating periods. Therefore, the Committee considers it necessary to restrict application of the substances onto or into water during the periods when migration of whitebait or elvers is occurring. The Committee, however, acknowledges the need to treat small infestations of weed that may be discovered during surveillance activities, which would avoid having to treat larger areas in the future that may result from the spread of untreated weed. These surveillance activities may be conducted in November, hence it is necessary to provide dispensation to allow treatment of small infestations of weed that are discovered during this period. The Committee considers that the following control would be more effective in terms of its effect on the management, use and risks of the substances in relation to the protection of whitebait and elvers than setting the EEL water alone:

A person who applies the substance onto or into water must ensure that the substance is not applied onto or into water bodies where whitebait and elvers may be present during the Department of Conservation's defined local whitebait season relevant to that region. This control shall not apply to any application of the substance to a pest plant infestation area that is less than 5 m^2, where the application is undertaken during surveillance to ensure completion of the eradication of a pest species in that spray area, during the period 1 to 30 November.

6.17. The Committee notes that iwi may have local knowledge relating to the behaviour of whitebait and elvers in local waterways. The Committee recommends that a person who applies the substance onto or into water is also encouraged to consult with local iwi in relation to the mātauranga Māori for the application area.

Nonyl phenol ethoxylates

6.18. The Committee notes that there may be potential risks to the aquatic environment from the presence of nonyl phenol ethoxylates in any substance applied onto or into water. These risks relate to the chronic toxicity and persistence of nonyl phenol ethoxylates in the aquatic environment. It is therefore considered necessary to protect organisms within the aquatic environment from harm by prohibiting the presence of nonyl phenol ethoxylates within any substance applied onto or into water. This is consistent with the approach of other international regulators. The Committee considers that the following control would be more likely to achieve its purpose than other controls, in terms of its effect on the management, use and risks of the substances:

A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.

Static Water Bodies

6.19. Treatment of aquatic plants can result in oxygen loss in water from decomposition of dead plants. This loss can cause fish suffocation and harm other aquatic organisms. To minimise this risk, the Committee considers it is necessary to restrict the percentage of a static water body that may be treated in one single application and to allow time for the oxygen levels in a water body to recover before additional applications of the substances. International best practice has indicated that limiting the application area to 33% of a static water body and prohibiting application of the substances to any additional areas of the water body for no less than seven days is protective of dissolved oxygen levels in a static water body. These restrictions allow the dissolved oxygen levels in the static water body to recover to a level that is protective of non-target organisms. The Committee, however, notes that this restriction is unnecessary where the pre-treatment dissolved oxygen levels of the static water body are less than 4 mg/l prior to application of the substances, as non-target aquatic organisms are unlikely to be present under these conditions. The Committee considers that the following control would be more effective in terms of its effect on the management, use and risks of the substances in relation to the protection of non-target aquatic organisms than setting the EEL water alone:

A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body.

If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body.

These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.

Incident Reporting

6.20. The Committee considers that, due to a lack of information about potential adverse effects to the aquatic environment, a control requiring reporting of incidents, including accidental by-kills, following application of the substances onto or into water, is necessary. The Committee considers that the following control would be more effective in terms of its effect on the management, use and risks of the substances in relation to the protection of non-target aquatic organisms than setting the EEL water alone:

A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.

Annual Report

6.21. The Committee considers that due to the public interest associated with the application of the substances onto or into water it is necessary to require persons using the substances onto or into water to provide an annual report of activities to the EPA. The annual report requirement was suggested by the applicant group and is supported by a number of submitters including Te Ngaru Roa a Maui. The Committee considers that an annual report will provide transparency and help inform the public about the activities that have been undertaken involving application of the substances onto or into water. The Committee notes that they have added a number of additional requirements relating to monitoring and consultation/engagement activities to address some of the concerns raised by submitters. The Committee considers that the requirement to make information public is likely to encourage responsible use of the substances and compliance with the relevant controls. Therefore, the following control would be more likely to achieve its purpose than the requirement to meet the controls alone:

A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31 July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information;

- *A map of all locations where the substance has been applied;*
- *Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application;*
- *Details (including results) of water sampling conducted to confirm compliance with EEL values;*
- *Details of sediment testing conducted;*
- *Details of pest plant species targeted;*
- *Details of dissolved oxygen levels prior to application of the substance to any static water body;*
- *Details of pH testing conducted prior to application of substances containing metsulfuron-methyl;*
- *Details of engagement/consultation activities undertaken;*
- *Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints;*
- *An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.*

Guidance note: To monitor EEL compliance, a sample should be taken within 24 hours after application at a 100 m distance downstream of the treatment area. Monitoring is only required for operations where greater than 2,500 m^2 of a static water body, or 5,000 m^2 of a flowing water body is treated. Monitoring is not required where the substance is applied via knapsack (handheld) only.

7. Recommendations

7.1. The Committee notes that there are a number of issues that were raised by submitters that are unable to be addressed when considering this application. One of these areas was the issue of the potential effects on bees of surfactants that are tank-mixed as adjuvants/surfactants with the pesticides and that are applied in a wide-dispersive manner into the environment. The Committee acknowledges the validity of this concern and recommends the following:

It is recommended that the EPA examine the risks to the environment (including risks to aquatic organisms and bees) associated with adjuvants/surfactants that may be tank-mixed with pesticides and applied in a wide-dispersive manner into the environment, to determine whether the current controls on these substances are sufficient to manage the risks.

7.2. Another issue relates to consultation/engagement with iwi. The Committee acknowledges that engagement and consultation with iwi is important and recommends the following:

A person who applies the substance onto or into water should ensure that any iwi/Māori that may be potentially directly affected are engaged with at the earliest possible instance and notified of operations that are going to be undertaken.

This person is also encouraged to commit to open, transparent and effective communication with iwi/Māori with the intent of working together by sharing their aspirations, knowledge and expertise. The expectation of such communication is to develop jointly agreed monitoring frameworks which establish priorities, extent and frequency for monitoring, as well as provide appropriate protection and identification of sites of significance. In addition, ongoing communication is expected to identify ongoing priorities for monitoring and potential for further iwi/Māori participation.

7.3. The Committee notes that a number of submitters raised the issue that the current Safety Data Sheets for the substances indicated that the substances should not be applied onto or into water. The Committee recommends that the EPA advises the manufacturers/importers of the substances that the HSNO approvals of the substances have been revised to allow permitted people to apply the substances onto or into water.

8. Best international practices and standards for the safe management of hazardous substances

8.1. To meet the requirement in section 63A(6)(b) of the Act, the Committee is require to take into account best international practices and standards for the safe management of hazardous substances. During its assessment the staff considered assessments for the application of the substances onto or into water conducted by the following regulators:

- The United States Environmental Protection Authority; and
- The Australian Pesticides and Veterinary Medicines Authority.

8.2. The Committee considers that the proposed controls for the application of the substances onto or into water are consistent with best international practice and standards.

9. Conclusion

9.1. Taking into account the staff's assessment of the potential risks, costs and benefits associated with the modified reassessment of the substances, the Committee considers, that with controls in place:

- the increase in risks to human health arising from the effects associated with the modified reassessment of the substances is negligible;
- the increase in risks to the environment arising from the effects associated with modified reassessment of the substances is negligible, although there remains a level of uncertainty in this regard which has resulted in a precautionary approach to risk and additional controls on use of the substances,
- the proposed controls are sufficiently conservative to address any uncertainty in the adverse effects;
- significant adverse impacts on the social or economic environment with the substances are not anticipated;
- it is unlikely that modified reassessment of the substances could have a significant impact on Māori culture or traditional relationships with ancestral lands, water, sites, wāhi tapu, valued flora and fauna or other taonga or will breach the principles of the Te Tiriti o Waitangi/Treaty of Waitangi;
- benefits will be derived for New Zealand by allowing the application of the substances onto or into water.

10. Decision

10.1. The Committee has used the decision pathway attached as Appendix B to reach a decision.

10.2. The Committee determines that the application meets the criteria for consideration under section 63A.

10.3. The Committee considers that, while acknowledging data gaps, there is sufficient information available to proceed with consideration of the application.

10.4. The Committee identified the non-negligible risks, costs and benefits associated with the modified reassessment and considered proposed controls for the substances.

10.5. Having considered all the effects associated with the reassessment proposal and best international practices and standards for the safe management of hazardous substances, the Committee considers that with the proposed controls in place the benefits associated with the modified reassessment of the substances will outweigh the risks.

10.6. The application for a modified reassessment of the substances included in this application is thus approved with controls as listed in Appendix A.

Signed by	**Date: 10 December 2012**
Shaun Ogilvie **Chair, Decision Making Committee** **Environmental Protection Authority**	

Appendix A: Revised controls applying to the substances

1. **Notes**: The controls for this substance apply for the indefinite duration of the approval of this substance.
2. Please refer to the Hazardous Substances Regulations[11] for the requirements prescribed for each control.

Table A1: Controls for Water dispersible granule containing 600 g/kg metsulfuron-methyl (Substance A) (Approval Number HSR000232) – codes, regulations and variations.

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL values are set for metsulfuron-methyl: $TEL_{drinking\ water}$= 0.04 mg/L
T2	29, 30	Controlling exposure in places of work through the setting of WESs.	**Workplace Exposure Standards:** Under regulation 29(2) of the Hazardous Substance (Classes 6, 8, and 9 Controls) Regulations 2001, the Authority adopts as workplace exposure standards for this substance, and each component of this substance, any applicable value or values specified in the document described in "Workplace Exposure Standards", published by the Department of Labour, September 2010, ISBN 978-0-478-36002-8. Also available at http://www.osh.dol.govt.nz/order/catalogue/pdf/wes2010.pdf
T4	7	Requirements for equipment used to handle substances	
T5	8	Requirements for protective clothing and equipment	
T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for metsulfuron-methyl: EEL_{water}= 0.0084 µg/L
E2	46 – 48	Restrictions on use of substances in application areas	The maximum application rate for application of this substance onto or into water is:

[11] The regulations can be found on the New Zealand Legislation website; http://www.legislation.co.nz

			0.084 kg ai/ha, a maximum of 3 times per year with a minimum application interval of 30 days.
E5	5(2), 6	Requirements for keeping records of use	
E6	7	Requirements for equipment used to handle substances	
E7	9	Approved handler/security requirements for certain ecotoxic substances	Regulation 9(1) is replaced by: *(1) This hazardous substance must be under the personal control of an approved handler when the substance is—* *(a) applied in a wide dispersive manner;* *(b) used by a commercial contractor; or* *(c) applied into or onto water.*

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I16	25	Secondary identifiers for toxic substances	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	
I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be	

		packaged to a standard not meeting Packing Group I, II or III criteria	
P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler	This substance may only be applied onto or into water

		requirements (including test certificate and qualification requirements)	by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following: • Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application. The signs must be removed at the end of this period. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken

		cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A2: Controls for Water dispersible granule containing 600 g/kg metsulfuron-methyl (Substance B) (Approval Number HSR000242) – codes, regulations and variations.

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL values are set for metsulfuron-methyl: $TEL_{drinking\ water}$= 0.04 mg/L

T2	29, 30	Controlling exposure in places of work through the setting of WESs.	**Workplace Exposure Standards:** Under regulation 29(2) of the Hazardous Substance (Classes 6, 8, and 9 Controls) Regulations 2001, the Authority adopts as workplace exposure standards for this substance, and each component of this substance, any applicable value or values specified in the document described in "Workplace Exposure Standards", published by the Department of Labour, September 2010, ISBN 978-0-478-36002-8. Also available at http://www.osh.dol.govt.nz/order/catalogue/pdf/wes2010.pdf
T5	8	Requirements for protective clothing and equipment	
T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for metsulfuron-methyl: EEL_{water}= 0.0084 µg/L
E2	46 – 48	Restrictions on use of substances in application areas	The maximum application rate for application of this substance onto or into water is: 0.084 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E5	5(2), 6	Requirements for keeping records of use	
E6	7	Requirements for equipment used to handle substances	
E7	9	Approved handler/security requirements for certain ecotoxic substances	Regulation 9(1) is replaced by: *(1) This hazardous substance must be under the personal control of an approved handler when the substance is—* *(a) applied in a wide dispersive manner;* *(b) used by a commercial contractor; or* *(c) applied into or onto water.*

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 –	Identification requirements, duties of	

	35, 36(1) – (7)	persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I16	25	Secondary identifiers for toxic substances	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	
I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	
P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	

D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water

Water		taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following: • Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application. The signs must be removed at the end of this period. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application,

		frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A3: Controls for Water dispersible granule containing 200 g/kg metsulfuron-methyl (Substance A) (Approval Number HSR000238) – codes, regulations and variations.

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL values are set for metsulfuron-methyl: $TEL_{drinking\ water}$= 0.04 mg/L
T2	29, 30	Controlling exposure in places of work through the setting of WESs.	**Workplace Exposure Standards:** Under regulation 29(2) of the Hazardous Substance (Classes 6, 8, and 9 Controls) Regulations 2001, the Authority adopts as workplace exposure standards for this substance, and each component of this substance, any applicable value or values specified in the document described in "Workplace Exposure Standards", published by the Department of Labour, September 2010, ISBN 978-0-478-36002-8. Also available at http://www.osh.dol.govt.nz/order/catalogue/pdf/wes2010.pdf
T4	7	Requirements for equipment used to handle substances	
T5	8	Requirements for protective clothing and equipment	
T7	10	Restrictions on the carriage of toxic or corrosive substances on	

		passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for metsulfuron-methyl: EEL_{water}= 0.0084 µg/L
E2	46 – 48	Restrictions on use of substances in application areas	The maximum application rate for application of this substance onto or into water is: 0.084 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E5	5(2), 6	Requirements for keeping records of use	
E6	7	Requirements for equipment used to handle substances	
E7	9	Approved handler/security requirements for certain ecotoxic substances	Regulation 9(1) is replaced by: *(1) This hazardous substance must be under the personal control of an approved handler when the substance is—* *(a) applied in a wide dispersive manner;* *(b) used by a commercial contractor; or* *(c) applied into or onto water.*

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I8	14	Priority identifiers for toxic substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I16	25	Secondary identifiers for toxic substances	
I17	26	Use of generic names	
I18	27	Requirements for using concentration ranges	
I19	29 – 31	Additional information requirements, including situations where substances	

		are in multiple packaging	
I20	36(8)	Durability of information for class 6.1 substances	
I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	
I30	53	Advertising corrosive and toxic substances	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	
P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following:

		• Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application. The signs must be removed at the end of this period. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted;

		• Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A4: Controls for Water dispersible granule containing 200 g/kg metsulfuron-methyl (Substance B) (Approval Number HSR000245) – codes, regulations and variations.

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL values are set for metsulfuron-methyl: $TEL_{drinking\ water}$= 0.04 mg/L
T2	29, 30	Controlling exposure in places of work through the setting of WESs.	**Workplace Exposure Standards:** Under regulation 29(2) of the Hazardous Substance (Classes 6, 8, and 9 Controls) Regulations 2001, the Authority adopts as workplace exposure standards for this substance, and each component of this substance, any applicable value or values specified in the document described in "Workplace Exposure Standards", published by the Department of Labour, September 2010, ISBN 978-0-478-36002-8. Also available at http://www.osh.dol.govt.nz/order/catalogue/pdf/wes2010.pdf
T4	7	Requirements for equipment used to handle substances	
T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for metsulfuron-methyl: EEL_{water}= 0.0084 µg/L
E2	46 – 48	Restrictions on use of substances in application areas	The maximum application rate for application of this substance onto or into

			water is: 0.084 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E5	5(2), 6	Requirements for keeping records of use	
E6	7	Requirements for equipment used to handle substances	
E7	9	Approved handler/security requirements for certain ecotoxic substances	Regulation 9(1) is replaced by: *(1) This hazardous substance must be under the personal control of an approved handler when the substance is—* *(a) applied in a wide dispersive manner;* *(b) used by a commercial contractor; or* *(c) applied into or onto water.*

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I16	25	Secondary identifiers for toxic substances	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	
I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	
P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM13	42	Level 3 emergency management	

		requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following: • Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application. The signs must be removed at the end of this period. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.

Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A5: Controls for Emulsifiable concentrate containing 100 g/litre haloxyfop-R-methyl as the methyl ester (Approval Number HSR000373) – codes, regulations and variations.

Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001

Code	Regulation	Description	Variation
F2	Reg 8	Restrictions on the carriage of flammable substances on passenger service vehicles	
F6	Regs 60 – 70	Requirements to prevent unintended ignition of class 2.1.1, 2.1.2 and 3.1 substances	
F11	Reg 76	Segregation of incompatible substances	

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL values are set for haloxyfop-R-methyl: $TEL_{drinking\ water}$= 0.0021 mg/L
T2	29, 30	Controlling exposure in places of work through the setting of WESs.	**Workplace Exposure Standards:** Under regulation 29(2) of the Hazardous Substance (Classes 6, 8, and 9 Controls) Regulations 2001, the Authority adopts as workplace exposure standards for this substance, and each component of this substance, any applicable value or values specified in the document described in "Workplace Exposure Standards", published by the Department of Labour, September 2010, ISBN 978-0-478-36002-8. Also available at http://www.osh.dol.govt.nz/order/catalogue/pdf/wes2010.pdf
T4	7	Requirements for equipment used to handle substances	
T5	8	Requirements for protective clothing and equipment	
T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for haloxyfop-R-methyl: EEL_{water}= 0.84 µg/L
E2	46 – 48	Restrictions on use of substances	The maximum application rate for

		in application areas	application of this substance onto or into water is: 0.75 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E6	7	Requirements for equipment used to handle substances	
E7	9	Approved handler/security requirements for certain ecotoxic substances	1) This substance must be under the control of an approved handler when the substance is – (a) applied in a wide dispersive manner; (b) used by a commercial contractor; or (c) applied onto or into water. (2) However, the substance may be handled by a person who is not an approved handler if – (a) an approved handler is present at the place where the substance is being handled; and (b) the approved handler has provided guidance to the person in respect of the handling; and (c) the approved handler is available at all times to provide assistance, if necessary, to the person while the substance is being handled by the person. (3) Clause (1) is deemed to be complied with if, in the case of the aerial application of the substance, the person who carries out the application has a current pilot chemical rating in accordance with Part 61 of the Civil Aviation Rules.

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I5	11	Priority identifiers for flammable	

		substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I13	22	Secondary identifiers for flammable substances	
I16	25	Secondary identifiers for toxic substances	
I17	26	Use of generic names	
I18	27	Requirements for using concentration ranges	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	
I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	
I25	43	Specific documentation requirements for flammable substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	
P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D2	6	Disposal requirements for flammable	

		substances	
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM9	17	Additional information requirements for flammable and oxidising substances and organic peroxides	
EM10	21 – 24	Fire extinguisher requirements	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM12	Regs 35 – 41	Level 3 emergency management requirements: secondary containment	**Regulations 35-42 of the Hazardous Substances (Emergency Management) Regulations 2001** The following subclauses are added after subclause (3) of regulation 36: (4) For the purposes of this regulation, and regulations 37 to 40, where this substance is contained in pipework that is installed and operated so as to manage any loss of containment in the pipework it— (a) is not to be taken into account in determining

			whether a place is required to have a secondary containment system; and (b) is not required to be located in a secondary containment system. (5) In this clause, pipework— (a) means piping that— (i) is connected to a stationary container; and (ii) is used to transfer a hazardous substance into or out of the stationary container; and (b) includes a process pipeline or a transfer line.
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Schedule 8 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 8	Schedule 8	This schedule prescribes the controls for stationary container systems. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Schedule 9 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 9	Schedule 9	This schedule prescribes the controls relating to secondary containment. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Schedule 10 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 10	Schedule 10	This schedule prescribes the controls for the adverse effects of unintended ignition of class 2 and 3.1 flammable substances. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following: • Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application, where application of the substance is to a flowing water body, and for 21 days after application where application of the substance is to a static water body. The signs must be removed after five days or 21 days, respectively. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days

		prior to each application of the substance.
Migration	77A	A person who applies the substance onto or into water must ensure that the substance is not applied onto or into water bodies where whitebait and elvers may be present during the Department of Conservation's defined local whitebait season relevant to that region. This control shall not apply to any application of the substance to a pest plant infestation area that is less than 5 m^2, where the application is undertaken during surveillance to ensure completion of the eradication of a pest species in that spray area, during the period 1 to 30 November.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl;

		• Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A6: Controls for Soluble concentrate containing 250 g/litre imazapyr as the isopropylamine salt (Approval Number HSR000521) – codes, regulations and variations.

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL values are set for imazapyr: $TEL_{drinking\ water}$= 9 mg/L
T2	29, 30	Controlling exposure in places of work through the setting of WESs.	**Workplace Exposure Standards:** Under regulation 29(2) of the Hazardous Substance (Classes 6, 8, and 9 Controls) Regulations 2001, the Authority adopts as workplace exposure standards for this substance, and each component of this substance, any applicable value or values specified in the document described in "Workplace Exposure Standards", published by the Department of Labour, September 2010, ISBN 978-0-478-36002-8. Also available at http://www.osh.dol.govt.nz/order/catalogue/pdf/wes2010.pdf
T4	7	Requirements for equipment used to handle substances	
T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for imazapyr: EEL_{water}= 0.18 µg/L
E2	46 – 48	Restrictions on use of substances in application areas	The maximum application rate for application of this substance onto or into water is: 2 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E5	5(2), 6	Requirements for keeping records	

		of use	
E6	7	Requirements for equipment used to handle substances	
E7	9	Approved handler/security requirements for certain ecotoxic substances	Regulation 9(1) is replaced by: *(1) This hazardous substance must be under the personal control of an approved handler when the substance is—* *(a) applied in a wide dispersive manner;* *(b) used by a commercial contractor; or* *(c) applied into or onto water.*

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I16	25	Secondary identifiers for toxic substances	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	
I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	

P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM12	Regs 35 – 41	Level 3 emergency management requirements: secondary containment	The following subclauses are added after subclause (3) of regulation 36: *(4) For the purposes of this regulation, and regulations 37 to 40, where this substance is contained in pipework that is installed and operated so as to manage any loss of containment in the*

pipework it—

(a) is not to be taken into account in determining whether a place is required to have a secondary containment system; and

(b) is not required to be located in a secondary containment system.

(5) In this clause, pipework—

(a) means piping that—

(i) is connected to a stationary container; and

(ii) is used to transfer a hazardous substance into or out of the stationary container; and

(b) includes a process pipeline or a transfer line.

The following subclauses are added at the end of regulation 37:

(2) If pooling substances which do not have class 1 to 5 hazard classifications are held in a place above ground in containers each of which has a capacity of 60 litres or less—

(a if the place's total pooling potential is less than 20,000 litres, the secondary containment system must have a capacity of at least 25% of that total pooling potential:

(b) if the place's total pooling potential is 20,000 litres or more, the secondary containment system must have a capacity of the greater of—

(i) 5% of the total pooling potential; or

(ii) 5,000 litres.

(3) Pooling substances to which subclause (2) applies must be segregated where appropriate to

			ensure that leakage of one substance may not adversely affect the container of another substance. The following subclauses are added at the end of regulation 38: *(2) If pooling substances which do not have class 1 to 5 hazard classifications are held in a place above ground in containers 1 or more of which have a capacity of more than 60 litres but none of which have a capacity of more than 450 litres—* *(a) if the place's total pooling potential is less than 20,000 litres, the secondary containment system must have a capacity of either 25% of that total pooling potential or 110% of the capacity of the largest container, whichever is the greater:* *(b) if the place's total pooling potential is 20,000 litres or more, the secondary containment system must have a capacity of the greater of—* *(i) 5% of the total pooling potential; or* *(ii) 5,000 litres* *(3) Pooling substances to which subclause (2) applies must be segregated where appropriate to ensure that the leakage of one substance may not adversely affect the container of another substance.*
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of

			pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Schedule 8 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 8	Schedule 8	This schedule prescribes the controls for stationary container systems. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following: • Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application, where application of the substance is to a flowing water body, and for 21 days after application, where application of the substance is to a static water body. The signs must be removed after five days or 21 days, respectively. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Nonyl	77A	A person who applies the substance onto or into water must ensure that the

phenol ethoxylates		substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A7: Controls for MSF 600 (Approval Number HSR000063) – codes, regulations and variations.

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL values are set for metsulfuron-methyl: $TEL_{drinking\ water}$= 0.04 mg/L
T4	7	Requirements for equipment used to handle substances	
T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for metsulfuron-methyl: EEL_{WATER} = 0.0084 µg metsulfuron-methyl /L EEL_{SOIL} = 0.52 µg of metsulfuron-methyl/kg dry wt soil
E2	46 – 48	Restrictions on use of substances in application areas	The following maximum application rates are set for use of the substance in the terrestrial environment: Handgun spray: 35g per 100L Knapsack application: 5g per 10L Boom spray: 500g/Ha The maximum application rate for application of this substance onto or into water is: 0.084 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E5	5(2), 6	Requirements for keeping records of use	
E6	7	Requirements for equipment used to handle substances	
E7	9	Approved handler/security requirements for certain ecotoxic substances	Regulation 9(1) is replaced by: *(1) This hazardous substance must be under the personal control of an approved handler when the substance is—* *(a) applied in a wide dispersive manner;* *(b) used by a commercial contractor; or* *(c) applied into or onto water.*

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I16	25	Secondary identifiers for toxic substances	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	
I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	
P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D4	8	Disposal requirements for toxic and corrosive substances	

D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.

Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following: • Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application. The signs must be removed at the end of this period. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following

		information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A8: Controls for Ignite (Approval Number HSR002431) – codes, regulations and variations.

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL is set for haloxyfop-p-methyl: $TEL_{DRINKINGWATER}$ – 0.0021 mg/l (based on a 70 kg person consuming 2 L of water per day)
T2	29, 30	Controlling exposure in places of work through the setting of WESs.	The following WESs are set: ▪ $WES(skin)_{COMPONENT\ B}$ TWA = 100 ppm or 606mg/m^3 STEL = 150 ppm or 909 mg/m^3 ▪ $WES_{COMPONENT\ F}$ TWA = 3 ppm or 7.5mg/m^3 STEL = 6 ppm or 15 mg/m^3
T4	7	Requirements for equipment used to handle substances	
T5	8	Requirements for protective clothing and equipment	
T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic	The following EEL values are set for

		substances through the setting of EELs	haloxyfop-R-methyl: EEL_{water}= 0.84 µg/L The following EEL is set for this substance: EEL_{SOIL} - 1 µg/kg of dry weight soil.
E2	46 – 48	Restrictions on use of substances in application areas	The maximum application rate for application of this substance onto or into water is: 0.75 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E5	5(2), 6	Requirements for keeping records of use	
E6	7	Requirements for equipment used to handle substances	
E7	9	Approved handler/security requirements for certain ecotoxic substances	1) This substance must be under the control of an approved handler when the substance is – (a) applied in a wide dispersive manner; (b) used by a commercial contractor; or (c) applied onto or into water. (2) However, the substance may be handled by a person who is not an approved handler if – (a) an approved handler is present at the place where the substance is being handled; and (b) the approved handler has provided guidance to the person in respect of the handling; and (c) the approved handler is available at all times to provide assistance, if necessary, to the person while the substance is being handled by the person. (3) Clause (1) is deemed to be complied with if, in the case of the aerial application of the substance, the person who carries out the application has a current pilot chemical rating in accordance with Part 61 of the Civil Aviation Rules.

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I8	14	Priority identifiers for toxic substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I16	25	Secondary identifiers for toxic substances	
I17	26	Use of generic names	
I18	27	Requirements for using concentration ranges	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	
I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	
I30	53	Advertising corrosive and toxic substances	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	
P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	

PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM12	Regs 35 – 41	Level 3 emergency management requirements: secondary containment	The following subclauses are added after subclause (3) of regulation 36: (4) For the purposes of this regulation, and regulations 37 to 40, where this substance is contained in pipework that is installed and operated so as to manage any loss of containment in the pipework it— (a) is not to be taken into account in determining whether a place is required to have a secondary containment system; and (b) is not required to be located

			in a secondary containment system. (5) In this clause, pipework— (a) means piping that— (i) is connected to a stationary container; and (ii) is used to transfer a hazardous substance into or out of the stationary container; and (b) includes a process pipeline or a transfer line.
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following:

		• Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application, where application of the substance is to a flowing water body, and for 21 days after application where application of the substance is to a static water body. The signs must be removed after five days or 21 days, respectively. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Migration	77A	A person who applies the substance onto or into water must ensure that the substance is not applied onto or into water bodies where whitebait and elvers may be present during the Department of Conservation's defined local whitebait season relevant to that region. This control shall not apply to any application of the substance to a pest plant infestation area that is less than 5 m^2, where the application is undertaken during surveillance to ensure completion of the eradication of a pest species in that spray area, during the period 1 to 30 November.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following

		information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A9: Controls for Garlon 360 (Approval Number HSR007690) – codes, regulations and variations.

Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001

Code	Regulation	Description	Variation
F1	7	General test certification requirements for hazardous substance locations	
F2	8	Restrictions on the carriage of flammable substances on passenger service vehicles	
F3	55	General limits on flammable substances	
F5	58, 59	Requirements regarding hazardous atmosphere zones for class 2.1.1, 2.1.2 and 3.1 substances	
F6	60 – 70	Requirements to prevent unintended ignition of class 2.1.1, 2.1.2 and 3.1 substances	
F11	76	Segregation of incompatible substances	
F12	77	Requirement to establish a	

		hazardous substance locations if flammable substances are present	
F14	81	Test certification requirements for facilities where class 2.1.1, 2.1.2 or 3.1 substances are present	
F16	83	Controls on transit depots where flammable substances are present	

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL values are set for Triclopyr: $TEL_{drinking\ water}$= 0.1 mg/L
T2	29, 30	Controlling exposure in places of work through the setting of WESs.	No WESs for this substance are set at this time.
T4	7	Requirements for equipment used to handle substances	
T5	8	Requirements for protective clothing and equipment	
T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for triclopyr: EEL_{water}= 59 µg/L
E2	46 – 48	Restrictions on use of substances in application areas	The maximum application rate for application of this substance onto or into water is: 7.92 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E5	5(2), 6	Requirements for keeping records of use	
E6	7	Requirements for equipment used to handle substances	
E7	9	Approved handler/security requirements for certain ecotoxic substances	Regulation 9(1) is replaced by: *(1) This hazardous substance must be under the personal control of an approved handler when the substance is—* *(a) applied in a wide dispersive*

			manner; *(b) used by a commercial contractor; or* *(c) applied into or onto water.*

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I2	Reg 8	Priority identifiers for corrosive substances	
I3	9	Priority identifiers for ecotoxic substances	
I5	11	Priority identifiers for flammable substances	
I9	18	Secondary identifiers for all hazardous substances	
I10	19	Secondary identifiers for corrosive substances	
I11	20	Secondary identifiers for ecotoxic substances	
I13	22	Secondary identifiers for flammable substances	
I16	25	Secondary identifiers for toxic substances	
I17	26	Use of generic names	
I18	27	Requirements for using concentration ranges	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	
I20	36(8)	Durability of information for class 6.1 substances	
I21	37 – 39, 47 – 50	General documentation requirements	
I22	40	Specific documentation requirements for corrosive substances	
I23	41	Specific documentation requirements for ecotoxic substances	
I25	43	Specific documentation requirements for flammable substances	
I28	46	Specific documentation requirements	

		for toxic substances	
I29	51, 52	Signage requirements	
I30	53	Advertising corrosive and toxic substances	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	
P5	11	Packaging requirements for flammable liquids	
P13	19	Packaging requirements for toxic substances	
P14	20	Packaging requirements for corrosive substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D2	6	Disposal requirements for flammable substances	
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	

EM2	Reg 8(a)	Information requirements for corrosive substances	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM9	17	Additional information requirements for flammable and oxidising substances and organic peroxides	
EM10	21 – 24	Fire extinguisher requirements	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM12	Regs 35 – 41	Level 3 emergency management requirements: secondary containment	**Regulations 35-42 of the Hazardous Substances (Emergency Management) Regulations 2001** The following subclauses are added after subclause (3) of regulation 36: (4) For the purposes of this regulation, and regulations 37 to 40, where this substance is contained in pipework that is installed and operated so as to manage any loss of containment in the pipework it— (a) is not to be taken into account in determining whether a place is required to have a secondary containment system; and (b) is not required to be located in a secondary containment system. (5) In this clause, pipework— (a) means piping that— (i) is connected to a stationary container; and (ii) is used to transfer a hazardous substance into or out of the stationary container;

			and (b) includes a process pipeline or a transfer line.
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Schedule 8 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 8	Schedule 8	This schedule prescribes the controls for stationary container systems. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Schedule 9 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 9	Schedule 9	This schedule prescribes the controls relating to secondary containment. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Schedule 10 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 10	Schedule 10	This schedule prescribes the controls for the adverse effects of unintended ignition of class 2 and 3.1 flammable substances. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following: • Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application. The signs must be removed at the end of this period. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that

		may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A10: Controls for Scorp EC (Approval Number HSR008025) – codes, regulations and variations.

Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001

Code	Regulation	Description	Variation
F2	Reg 8	Restrictions on the carriage of flammable substances on passenger service vehicles	
F6	Regs 60 – 70	Requirements to prevent unintended ignition of class 2.1.1, 2.1.2 and 3.1 substances	
F11	Reg 76	Segregation of incompatible substances	

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL values are set for haloxyfop-R-methyl: $TEL_{drinking\ water}$= 0.0021 mg/L

			The following ADE and PDE values are set for haloxyfop-R-methyl: ADE = 0.0003 mg/kg bw/day PDE_{food} = 0.00024 mg/kg bw/day $PDE_{drinking\ water}$ = 0.00006 mg/kg bw/day
T2	29, 30	Controlling exposure in places of work through the setting of WESs.	The DoL WES values for Component A2 in Scorp EC are adopted.
T4	7	Requirements for equipment used to handle substances	
T5	8	Requirements for protective clothing and equipment	
T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for haloxyfop-R-methyl: EEL_{water}= 0.84 µg/L
E2	46 – 48	Restrictions on use of substances in application areas	The maximum application rate for application of this substance onto or into water is: 0.75 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E6	7	Requirements for equipment used to handle substances	
E7	Reg 9	Approved handler/security requirements for certain ecotoxic substances	1) This substance must be under the control of an approved handler when the substance is – (a) applied in a wide dispersive manner; (b) used by a commercial contractor; or (c) applied onto or into water. (2) However, the substance may be handled by a person who is not an approved handler if – (a) an approved handler is present at the place where the substance is being handled; and (b) the approved handler has

			provided guidance to the person in respect of the handling; and (c) the approved handler is available at all times to provide assistance, if necessary, to the person while the substance is being handled by the person. (3) Clause (1) is deemed to be complied with if, in the case of the aerial application of the substance, the person who carries out the application has a current pilot chemical rating in accordance with Part 61 of the Civil Aviation Rules.

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I5	11	Priority identifiers for flammable substances	
I8	14	Priority identifiers for toxic substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I13	22	Secondary identifiers for flammable substances	
I16	25	Secondary identifiers for toxic substances	
I17	26	Use of generic names	
I18	27	Requirements for using concentration ranges	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	
I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	

I25	43	Specific documentation requirements for flammable substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	
I30	53	Advertising corrosive and toxic substances	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	
P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D2	6	Disposal requirements for flammable substances	
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic	

		substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM9	17	Additional information requirements for flammable and oxidising substances and organic peroxides	
EM10	21 – 24	Fire extinguisher requirements	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM12	Regs 35 – 41	Level 3 emergency management requirements: secondary containment	The following subclauses are added after subclause (3) of regulation 36: (4) For the purposes of this regulation, and regulations 37 to 40, where this substance is contained in pipework that is installed and operated so as to manage any loss of containment in the pipework it— (a) is not to be taken into account in determining whether a place is required to have a secondary containment system; and (b) is not required to be located in a secondary containment system. (5) In this clause, pipework— (a) means piping that— (i) is connected to a stationary container; and (ii) is used to transfer a hazardous substance into or out of the stationary container; and (b) includes a process pipeline or a transfer line.
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Schedule 8 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 8	Schedule 8	This schedule prescribes the controls for stationary container systems. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Schedule 9 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 9	Schedule 9	This schedule prescribes the controls relating to secondary containment. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Schedule 10 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 10	Schedule 10	This schedule prescribes the controls for the adverse effects of unintended ignition of class 2 and 3.1 flammable substances. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.

Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following: • Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application, where application of the substance is to a flowing water body, and for 21 days after application where application of the substance is to a static water body. The signs must be removed after five days or 21 days, respectively. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Migration	77A	A person who applies the substance onto or into water must ensure that the substance is not applied onto or into water bodies where whitebait and elvers may be present during the Department of Conservation's defined local whitebait season relevant to that region. This control shall not apply to any application of the substance to a pest plant infestation area that is less than 5 m^2, where the application is undertaken during surveillance to ensure completion of the eradication of a pest species in that spray area, during the period 1 to 30 November.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time,

		date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A11: Controls for Crest 520 (Approval Number HSR100054) – codes, regulations and variations.

Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001

Code	Regulation	Description	Variation
F2	Reg 8	Restrictions on the carriage of flammable substances on passenger service vehicles	
F6	Regs 60 – 70	Requirements to prevent unintended ignition of class 2.1.1, 2.1.2 and 3.1 substances	
F11	Reg 76	Segregation of incompatible substances	

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic	The following TEL values are set for

		substances through the setting of TELs	haloxyfop-R-methyl: $TEL_{drinking\ water}$= 0.0021 mg/L The following ADE and PDE values are set for haloxyfop-R-methyl: ADE = 0.0003 mg/kg bw/day PDE_{food} = 0.00024 mg/kg bw/day $PDE_{drinking\ water}$ = 0.00006 mg/kg bw/day
T2	29, 30	Controlling exposure in places of work through the setting of WESs.	No WES values are proposed for any components of Crest 520 at this time.
T4	7	Requirements for equipment used to handle substances	
T5	8	Requirements for protective clothing and equipment	
T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for haloxyfop-R-methyl: EEL_{water}= 0.84 µg/L
E2	46 – 48	Restrictions on use of substances in application areas	The maximum application rate for application of this substance onto or into water is: 0.75 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E4	50, 51	Controls relating to protection of terrestrial vertebrates	
E5	5(2), 6	Requirements for keeping records of use	
E6	7	Requirements for equipment used to handle substances	
E7	Reg 9	Approved handler/security requirements for certain ecotoxic substances	1) This substance must be under the control of an approved handler when the substance is – (a) applied in a wide dispersive manner; (b) used by a commercial contractor; or (c) applied onto or into water. (2) However, the substance may be handled by a person who is not an

			approved handler if – (a) an approved handler is present at the place where the substance is being handled; and (b) the approved handler has provided guidance to the person in respect of the handling; and (c) the approved handler is available at all times to provide assistance, if necessary, to the person while the substance is being handled by the person. (3) Clause (1) is deemed to be complied with if, in the case of the aerial application of the substance, the person who carries out the application has a current pilot chemical rating in accordance with Part 61 of the Civil Aviation Rules.

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I5	11	Priority identifiers for flammable substances	
I8	14	Priority identifiers for toxic substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I13	22	Secondary identifiers for flammable substances	
I16	25	Secondary identifiers for toxic substances	
I17	26	Use of generic names	
I18	27	Requirements for using concentration ranges	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	

I20	36(8)	Durability of information for class 6.1 substances	
I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	
I25	43	Specific documentation requirements for flammable substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	
I30	53	Advertising corrosive and toxic substances	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	
P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D2	6	Disposal requirements for flammable substances	
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and	

		suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM9	17	Additional information requirements for flammable and oxidising substances and organic peroxides	
EM10	21 – 24	Fire extinguisher requirements	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM12	Regs 35 – 41	Level 3 emergency management requirements: secondary containment	The following subclauses are added after subclause (3) of regulation 36: (4) For the purposes of this regulation, and regulations 37 to 40, where this substance is contained in pipework that is installed and operated so as to manage any loss of containment in the pipework it— (a) is not to be taken into account in determining whether a place is required to have a secondary containment system; and (b) is not required to be located in a secondary containment system. (5) In this clause, pipework— (a) means piping that— (i) is connected to a stationary container; and (ii) is used to transfer a hazardous substance into or out of the stationary container;

			and (b) includes a process pipeline or a transfer line.
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Schedule 8 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 8	Schedule 8	This schedule prescribes the controls for stationary container systems. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Schedule 9 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 9	Schedule 9	This schedule prescribes the controls relating to secondary containment. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Schedule 10 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 10	Schedule 10	This schedule prescribes the controls for the adverse effects of unintended ignition of class 2 and 3.1 flammable substances. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic	77A	A person who applies the substance onto or into water must ensure that the

Farms		substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following: • Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application, where application of the substance is to a flowing water body, and for 21 days after application where application of the substance is to a static water body. The signs must be removed after five days or 21 days, respectively. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Migration	77A	A person who applies the substance onto or into water must ensure that the substance is not applied onto or into water bodies where whitebait and elvers may be present during the Department of Conservation's defined local whitebait season relevant to that region. This control shall not apply to any application of the substance to a pest plant infestation area that is less than 5 m^2, where the application is undertaken during surveillance to ensure completion of the eradication of a pest species in that spray area, during the period 1 to 30 November.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.

Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Table A12: Controls for Unimaz 250 SL (Approval Number HSR100098) – codes, regulations and variations.

Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

Code	Regulation	Description	Variation
T1	11 – 27	Limiting exposure to toxic substances through the setting of TELs	The following TEL values are set for imazapyr: $TEL_{drinking\ water}$= 9 mg/L.
T2	29, 30	Controlling exposure in places of work through the setting of WESs.	No WESs are set for UNIMAZ 250SL at this time.
T4	7	Requirements for equipment used to handle substances	
T5	8	Requirements for protective clothing and equipment	

T7	10	Restrictions on the carriage of toxic or corrosive substances on passenger service vehicles	
E1	32 – 45	Limiting exposure to ecotoxic substances through the setting of EELs	The following EEL values are set for imazapyr: EEL_{water}= 0.18 µg/L
E2	46 – 48	Restrictions on use of substances in application areas	The maximum application rate for application of this substance onto or into water is: 2 kg ai/ha, a maximum of three times per year with a minimum application interval of 30 days.
E5	5(2), 6	Requirements for keeping records of use	
E6	7	Requirements for equipment used to handle substances	
E7	9	Approved handler/security requirements for certain ecotoxic substances	Regulation 9(1) is replaced by: *(1) This hazardous substance must be under the personal control of an approved handler when the substance is—* *(a) applied in a wide dispersive manner;* *(b) used by a commercial contractor; or* *(c) applied into or onto water.*

Hazardous Substances (Identification) Regulations 2001

Code	Regulation	Description	Variation
I1	6, 7, 32 – 35, 36(1) – (7)	Identification requirements, duties of persons in charge, accessibility, comprehensibility, clarity and durability	
I3	9	Priority identifiers for ecotoxic substances	
I9	18	Secondary identifiers for all hazardous substances	
I11	20	Secondary identifiers for ecotoxic substances	
I16	25	Secondary identifiers for toxic substances	
I19	29 – 31	Additional information requirements, including situations where substances are in multiple packaging	

I21	37 – 39, 47 – 50	General documentation requirements	
I23	41	Specific documentation requirements for ecotoxic substances	
I28	46	Specific documentation requirements for toxic substances	
I29	51, 52	Signage requirements	

Hazardous Substances (Packaging) Regulations 2001

Code	Regulation	Description	Variation
P1	5, 6, 7(1), 8	General packaging requirements	
P3	9	Criteria that allow substances to be packaged to a standard not meeting Packing Group I, II or III criteria	
P13	19	Packaging requirements for toxic substances	
P15	21	Packaging requirements for ecotoxic substances	
PG3	Schedule 3	Packaging requirements equivalent to UN Packing Group III	
PS4	Schedule 4	Packaging requirements as specified in Schedule 4	

Hazardous Substances (Disposal) Regulations 2001

Code	Regulation	Description	Variation
D4	8	Disposal requirements for toxic and corrosive substances	
D5	9	Disposal requirements for ecotoxic substances	
D6	10	Disposal requirements for packages	
D7	11, 12	Information requirements for manufacturers, importers and suppliers, and persons in charge	
D8	13, 14	Documentation requirements for manufacturers, importers and suppliers, and persons in charge	

Hazardous Substances (Emergency Management) Regulations 2001

Code	Regulation	Description	Variation
EM1	6, 7, 9 – 11	Level 1 information requirements for suppliers and persons in charge	
EM6	8(e)	Information requirements for toxic substances	
EM7	8(f)	Information requirements for ecotoxic	

		substances	
EM8	12 – 16, 18 – 20	Level 2 information requirements for suppliers and persons in charge	
EM11	25 – 34	Level 3 emergency management requirements: duties of person in charge, emergency response plans	
EM12	Regs 35 – 41	Level 3 emergency management requirements: secondary containment	The following subclauses are added after subclause (3) of regulation 36: *(4) For the purposes of this regulation, and regulations 37 to 40, where this substance is contained in pipework that is installed and operated so as to manage any loss of containment in the pipework it—* *(a) is not to be taken into account in determining whether a place is required to have a secondary containment system; and* *(b) is not required to be located in a secondary containment system.* *(5) In this clause, pipework—* *(a) means piping that—* *(i) is connected to a stationary container; and* *(ii) is used to transfer a hazardous substance into or out of the stationary container; and* *(b) includes a process pipeline or a transfer line.* The following subclauses are added at the end of regulation 37: *(2) If pooling substances which do not have class 1 to 5 hazard classifications are held in a place above ground in containers each of which has a capacity of 60 litres or less—* *(a if the place's total pooling potential is less than 20,000 litres, the secondary*

			containment system must have a capacity of at least 25% of that total pooling potential: *(b) if the place's total pooling potential is 20,000 litres or more, the secondary containment system must have a capacity of the greater of—* *(i) 5% of the total pooling potential; or* *(ii) 5,000 litres.* *(3) Pooling substances to which subclause (2) applies must be segregated where appropriate to ensure that leakage of one substance may not adversely affect the container of another substance.* The following subclauses are added at the end of regulation 38: *(2) If pooling substances which do not have class 1 to 5 hazard classifications are held in a place above ground in containers 1 or more of which have a capacity of more than 60 litres but none of which have a capacity of more than 450 litres—* *(a) if the place's total pooling potential is less than 20,000 litres, the secondary containment system must have a capacity of either 25% of that total pooling potential or 110% of the capacity of the largest container, whichever is the greater:* *(b) if the place's total pooling potential is 20,000 litres or more, the secondary containment system must have a capacity of the greater of—* *(i) 5% of the total pooling*

			potential; or *(ii) 5,000 litres* *(3) Pooling substances to which subclause (2) applies must be segregated where appropriate to ensure that the leakage of one substance may not adversely affect the container of another substance.*
EM13	42	Level 3 emergency management requirements: signage	

Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001

Code	Regulation	Description	Variation
AH 1	4 – 6	Approved Handler requirements (including test certificate and qualification requirements)	This substance may only be applied onto or into water by, or under the direct supervision of, an approved handler who has undergone specialised training in the application of pesticides onto or into water.

Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004

Code	Regulation	Description
Tank Wagon	4 to 43 as applicable	Controls relating to tank wagons and transportable containers.

Schedule 8 of the Hazardous substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Code	Regulation	Description
Sch 8	Schedule 8	This schedule prescribes the controls for stationary container systems. The requirements of this schedule are detailed in the consolidated version of the Hazardous Substances (Dangerous Goods and Schedule Toxic Substances) Transfer Notice 2004.

Additional controls

Code	Regulation	Description
Permission	77A	A person must not apply or otherwise use this substance onto or into water, unless that person first obtains a permission from the Authority under section 95A of the Hazardous Substances and New Organisms Act 1996.
Aquatic Farms	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to aquatic farms where food is produced.
Irrigation Water	77A	A person who applies the substance onto or into water must ensure that the substance is not applied in a manner that may cause harm to crops using water taken from that water body.
Signage	77A	A person who applies the substance onto or into water must ensure that signage is erected and maintained at all public access points within 100 m of the

		application area to notify the public that application of a herbicide onto or into water has been undertaken and state the following: • Do not swim; • Do not gather food from the waterway (including fish); and • Do not take water for consumption. The signs must be erected on the day of, and prior to, the operation and remain in place for five days after application, where application of the substance is to a flowing water body, and for 21 days after application, where application of the substance is to a static water body. The signs must be removed after five days or 21 days, respectively. The signs must be capable of being read at a distance of at least five metres during daylight hours.
Notification	77A	A person who applies the substance onto or into water must ensure that any parties who may be potentially directly affected are notified of details of the operation, including treatment dates, the identity of the substance which is being used and relevant restrictions on the use of water, at least five working days prior to each application of the substance.
Nonyl phenol ethoxylates	77A	A person who applies the substance onto or into water must ensure that the substances covered by this approval are not applied onto or into water if they contain nonylphenol ethoxylates as a component of their formulation.
Static Water Bodies	77A	A person who applies the substance onto or into water must ensure that the substance is not applied, in any single application, onto more than 33% of the surface area of any static water body. If applications of the substance onto or into any static water body, taken cumulatively within a seven day period, arrive at more than 33% of the surface area of the water body, the substance must not be applied to any additional sections of the water body for at least seven days after the last application of the substance to that water body. These controls do not apply if the average dissolved oxygen level for the static water body is less than 4 mg/l at the time of application.
Incident Reporting	77A	A person who applies the substance onto or into water must ensure that any instances of unintended or accidental by-kills, are reported (including the time, date and location monitoring was undertaken) to the EPA within a week of the application of the substance. This excludes the by-kill of non-target plants that may be expected from the herbicidal nature of the substance.
Annual Report	77A	A person who applies the substance onto or into water must ensure that the Environmental Protection Authority is provided with an annual written report by 31st July each year. This report will cover all applications of the substances onto or into water for which they are responsible and must include the following information; • A map of all locations where the substance has been applied; • Details of the spray operation by location, including application method used, quantity of the substance applied, rates of application, frequency of application and the dates of application; • Details (including results) of water sampling conducted to confirm

		compliance with EEL values; • Details of sediment testing conducted; • Details of pest plant species targeted; • Details of dissolved oxygen levels prior to application of the substance to any static water body; • Details of pH testing conducted prior to application of substances containing metsulfuron-methyl; • Details of engagement/consultation activities undertaken; • Details of any incidents reported or complaints received in reference to the application of the substance and details of any actions taken to remedy complaints; and • An overall assessment of the outcome of each operation and any proposed follow-up spraying for the forthcoming year.

Appendix B: Decision path for applications for modified reassessment for amendments to hazardous substance approvals

Context

This decision path describes the decision-making process for applications to modify an approval to import or manufacture a hazardous substance under section 63A of the HSNO Act.

Introduction

The purpose of the decision path is to provide the HSNO decision maker[12] with guidance so that all relevant matters in the HSNO Act and the Methodology have been addressed. It does not attempt to direct the weighting that the HSNO decision maker may decide to make on individual aspects of an application.

In this document 'section' refers to sections of the HSNO Act, and 'clause' refers to clauses of the Methodology.

The decision path has two parts –

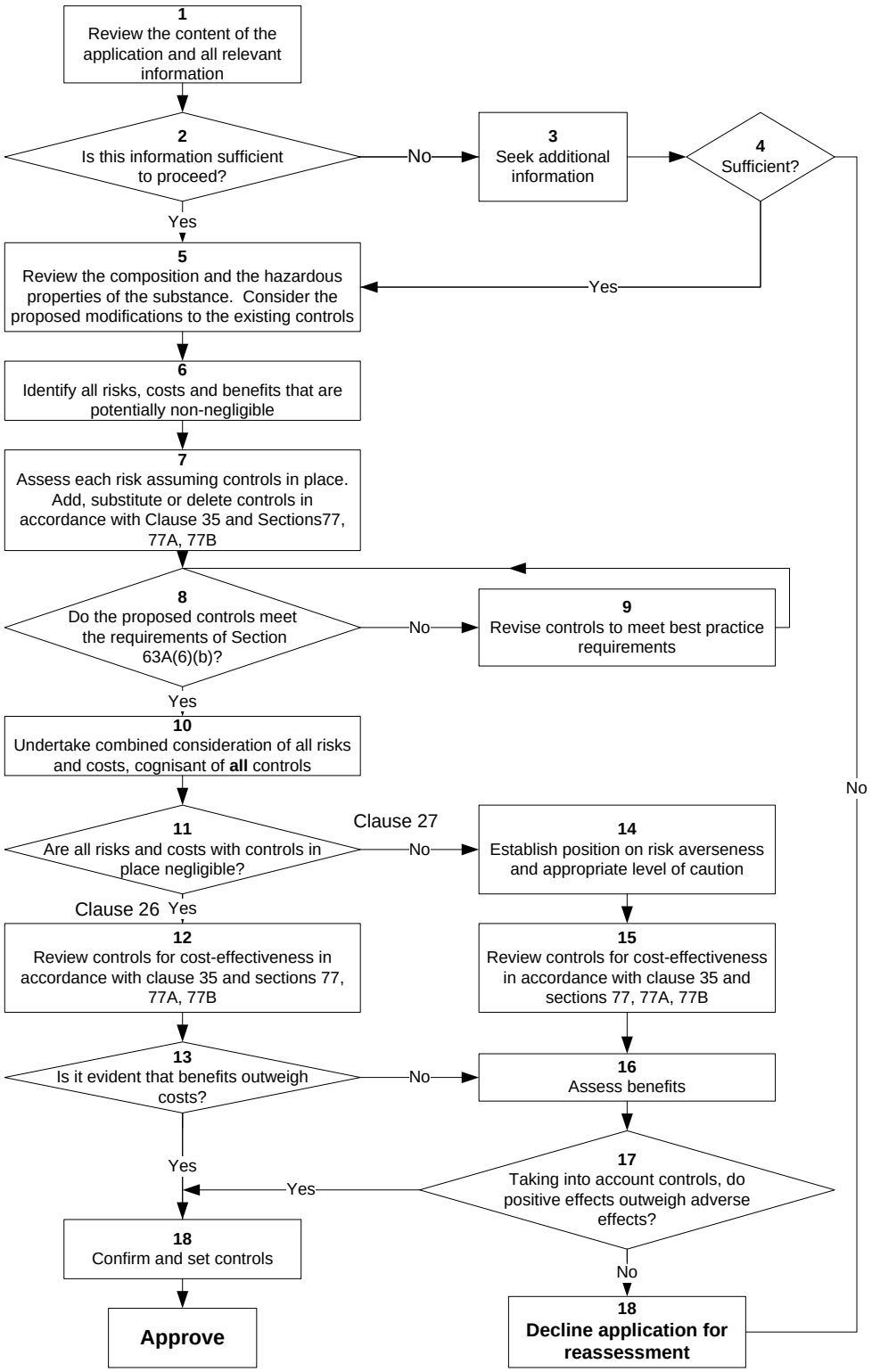
- Flowchart (a logic diagram showing the process prescribed in the Methodology and the HSNO Act to be followed in making a decision); and,
- Explanatory notes (discussion of each step of the process).

Of necessity the words in the boxes in the flowchart are brief, and key words are used to summarise the activity required. The explanatory notes provide a comprehensive description of each of the numbered items in the flowchart, and describe the processes that should be followed to achieve the described outcome.

For proper interpretation of the decision path it is important to work through the flowchart in conjunction with the explanatory notes.

[12] The HSNO decision maker refers to either the EPA Board or any committee or persons with delegated authority from the Board.

For proper interpretation of the decision path it is important to work through the flowchart in conjunction with the explanatory notes



Explanatory Notes

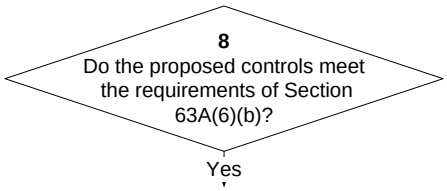
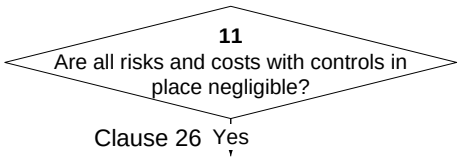
Item 1:	**Review the content of the application and all relevant information** Review the application, the E&R Report, and information received from experts and that provided in submissions (where relevant) in terms of section 28(2) of the Act and clauses 8, 15, 16 and 20 of the Methodology. While section 63A is not mentioned in section 53 (public notification), sections 63A(4) and (5) provide discretion for the HSNO decision maker to consider public notification (cf section 53(2)) and guidance re consultation where an application is not publicly notified.
Item 2:	**Is this information sufficient to proceed?** Review the information and determine whether or not there is sufficient information available to make a decision.
Item 3:	**(if 'no') Seek additional information** If there is not sufficient information then additional information may need to be sought under section 52 or 58 of the Act. If the applicant is not able to provide sufficient information for consideration then the application is not approved. In these circumstances the HSNO decision maker may choose to decline the application, or the application may lapse.
Item 4	**Sufficient?** When additional information has been sought, has this been provided, and is there now sufficient information available to make a decision? If the HSNO decision maker is not satisfied that it has sufficient information for consideration, then the application for reassessment must be declined (see item 18).
Item 5:	**(if 'yes' from item 2 or from item 4) Review the composition and the hazardous properties of the substance, and the proposed modifications to the existing controls** Review the composition of the substance, its hazardous properties, and the existing suite of controls on the substance. The level of detail for this review will depend on the nature of the application for modified reassessment. In most cases a detailed review will not be required. Consider the proposed modifications to the existing controls.
Item 6:	**Identify all risks, costs and benefits that are potentially non-negligible**[13] The modified reassessment process concentrates on a specific aspect of the approval (section 63A(1)(a)). All risks, costs and benefits that are potentially non-negligible need to be identified. However, emphasis should be placed on effects that are expected to change as a result of the proposed changes to controls. Costs and benefits are defined in the Methodology as the value of particular effects. However, in most cases these 'values' are not certain and have a likelihood attached to them. Thus costs and risks are generally synonymous and may be addressed together. Examples of costs that cannot be considered as risks are one-off direct financial costs incurred by

[13] Relevant effects are **marginal effects**, or the changes that will occur as a result of the substance being available. Financial costs associated with preparing and submitting an application are not marginal effects and are not effects of the substance(s) and are therefore not taken into account in weighing up adverse and positive effects. These latter types of costs are sometimes called 'sunk' costs since they are incurred whether or not the application is successful.

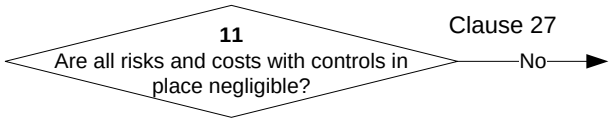
	applicants that cannot be considered as 'sunk' costs (see footnote 1). Where such costs arise they will considered in the same way as risks, but their likelihood of occurrence will be more certain. Identification is a two-step process that scopes the range of possible effects (risks, costs and benefits).	
	Step 1:	Identify all possible risks and costs (adverse effects) and benefits (positive effects) associated with the approval of the substance(s), and based on the range of areas of impact described in clause 9 of the Methodology and sections 5 and 6 of the Act[14]. Consider the effects of the substance through its lifecycle (clause 11) and include the likely effects of the substance being unavailable (sections 29(1)(a)(iii) and 29(1)(b)(iii)). Relevant costs and benefits are those that relate to New Zealand and those that would arise as a consequence of approving the application (clause 14). Consider short term and long term effects. Identify situations where risks and costs occur in one area of impact or affect one sector and benefits accrue to another area or sector; that is, situations where risks and costs do not have corresponding benefits.
	Step 2:	Document those risks, costs and benefits that can be readily concluded to be negligible[15], and eliminate them from further consideration. Note that where there are costs that are not associated with risks some of them may be eliminated at this scoping stage on the basis that the financial cost represented is very small and there is no overall effect on the market economy.
Item 7:	**Assess each risk assuming controls in place. Add, substitute or delete controls in accordance with clause 35 and sections 77, 77A and 77B of the Act.** The assessment of potentially non-negligible risks and costs should be carried out in accordance with clauses 12, 13, 15, 22, 24, 25, and 29 to 32 of the Methodology. The assessment is carried out with the default controls in place. Assess each potentially non-negligible risk and cost estimating the magnitude of the effect if it should occur and the likelihood of its occurring. Where there are non-negligible financial costs that are not associated with risks then the probability of occurrence (likelihood) may be close to 1. Relevant information provided in submissions should be taken into account. The distribution of risks and costs should be considered, including geographical distribution and distribution over groups in the community, as well as distribution over time. This information should be retained with the assessed level of risk/cost. This assessment includes consideration of how cautious the HSNO decision maker will be in the face of uncertainty (section 7). Where there is uncertainty, it may be necessary to estimate scenarios for lower and upper bounds for the adverse effect as a means of identifying the range of uncertainty (clause 32). It is also important to bear in mind the materiality of the uncertainty and how significant the uncertainty is for the decision (clause 29(a)). Consider the HSNO decision maker's approach to risk (clause 33 of the Methodology) or how risk	

[14] Effects on the natural environment, effects on human health and safety, effects on Maori culture and traditions, effects on society and community, effects on the market economy.

[15] Negligible effects are defined in the Annotated Methodology as "Risks which are of such little significance in terms of their likelihood and effect that they do not require active management and/or after the application of risk management can be justified by very small levels of benefits.

	averse the HSNO decision maker should be in giving weight to the residual risk, where residual risk is the risk remaining after the imposition of controls. See EPA report 'Approach to Risk' for further guidance[16]. Where it is clear that residual risks are non-negligible and where appropriate controls are available, add substitute or delete controls in accordance with sections 77 and 77A of the Act to reduce the residual risk to a tolerable level. If the substance has toxic or ecotoxic properties, consider setting exposure limits under section 77B. While clause 35 is relevant here, in terms of considering the costs and benefits of changing the controls, it has more prominence in items 12 and 15. If changes are made to the controls at this stage then the approach to uncertainty and the approach to risk must be revisited.
Item 8:	**Do the proposed controls meet the requirements of Section 63A(6)(b)?** Consider whether the proposed controls meet best international practices and standards for the safe management of hazardous substances. This includes the full suite of proposed controls including existing controls and modified controls.
Item 9:	**(if 'no' from item 8) Revise controls to meet best practice requirements** If the controls do not meet the best international practice criteria, then modify the controls so that they do meet them.
Item 10:	 **(if 'yes' from item 8) Undertake combined consideration of all risks and costs, cognisant of proposed controls** Once the risks and costs have been assessed individually consider all risks and costs together as a 'basket' of risks/costs. If it is feasible and/or appropriate, this may involve combining groups of risks and costs as for Clause 34 of the Methodology. The purpose of this step is to consider synergistic effects and determine whether these may change the level of individual risks.
Item 11:	**Are all risks and costs with controls in place negligible?** Looking at individual risks in the context of the 'basket' of risks, consider whether any of the residual risks (costs) are negligible.
Item 12:	 **(if 'yes' from item 11) Review controls for cost-effectiveness in accordance with clause 35**

[16] http://www.epa.govt.nz/Publications/Approach-to-Risk.pdf

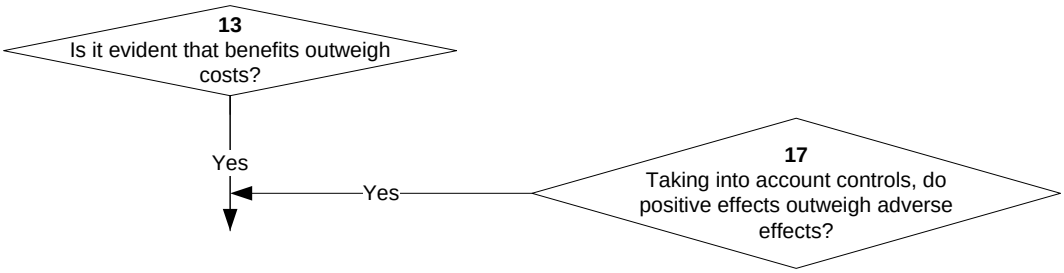
	and sections 77, 77A and 77B Where all risks are negligible the decision must be made under clause 26 of the Methodology. Consider the cost-effectiveness of the proposed individual controls and exposure limits. Where relevant and appropriate, add, substitute or delete controls whilst taking into account the view of the applicant, and the cost-effectiveness of the full package of controls.
Item 13:	**Is it evident that benefits outweigh costs?** Risks have already been determined to be negligible (item 9). In the unusual circumstance where there are non-negligible costs that are not associated with risks they have been assessed in item 7. Costs are made up of two components: internal costs or those that accrue to the applicant, and external costs or those that accrue to the wider community. Consider whether there are any non-negligible external costs that are not associated with risks. If there are no external non-negligible costs then external benefits outweigh external costs. The fact that the application has been submitted is deemed to demonstrate existence of internal or private net benefit, and therefore total benefits outweigh total costs[17]. As indicated above, where risks are deemed to be negligible, and the only identifiable costs resulting from approving an application are shown to accrue to the applicant, then a cost-benefit analysis will not be required. The act of an application being lodged will be deemed by the HSNO decision maker to indicate that the applicant believes the benefits to be greater than the costs. However, if this is not the case and there are external non-negligible costs then all benefits need to be assessed (via item 16).
Item 14:	 **(if 'no' from item 10) Establish HSNO decision maker's position on risk averseness and appropriate level of caution** Although 'risk averseness' (approach to risk, clause 33) is considered as a part of the assessment of individual risks, it is good practice to consolidate the view on this if several risks are non-negligible. This consolidation also applies to the consideration of the approach to uncertainty (section 7).
Item 15:	**Review controls for cost-effectiveness in accordance with clause 35 and sections 77, 77A and 77B** This constitutes a decision made under clause 27 of the Methodology (taken in sequence from items 10, 13, 14 and 15). Consider (a) whether any of the non-negligible risks can be reduced by varying the controls in accordance with section 77 and 77A of the Act, and (b) the cost-effectiveness of the controls.

[17] Technical Guide 'Decision making' section 4.9.3. Where risks are negligible and the costs accrue only to the applicant, no explicit cost benefit analysis is required. In effect, the HSNO decision maker takes the act of making an application as evidence that the benefits outweigh the costs. See also Protocol Series 1 'General requirements for the Identification and Assessment of Risks, Costs, and Benefits'

	Where relevant and appropriate, add, substitute or delete controls whilst taking into account the view of the applicant, and making sure that the benefits of doing so outweigh the costs. As for item 6, If the substance has toxic or ecotoxic properties, consider exposure limits under section 77B.
Item 16:	**(if 'no' from item 13, or in sequence from item 15) Assess benefits** Assess benefits or positive effects in terms of clause 13 of the Methodology. Since benefits are not certain, they are assessed in the same way as risks. Thus the assessment involves estimating the magnitude of the effect if it should occur and the likelihood of its occurring. This assessment also includes consideration of the HSNO decision maker's approach to uncertainty or how cautious the HSNO decision maker will be in the face of uncertainty (section 7). Where there is uncertainty, it may be necessary to estimate scenarios for lower and upper bounds for the positive effect. An understanding of the distributional implications of a proposal is an important part of any consideration of costs and benefits, and the distribution of benefits should be considered in the same way as for the distribution of risks and costs. The HSNO decision maker will in particular look to identify those situations where the beneficiaries of an application are different from those who bear the costs[18]. This is important not only for reasons related to fairness but also in forming a view of just how robust any claim of an overall net benefit might be. It is much more difficult to sustain a claim of an overall net benefit if those who enjoy the benefits are different to those who will bear the costs. Thus where benefits accrue to one area or sector and risks and costs are borne by another area or sector then the HSNO decision maker may choose to be more risk averse and to place a higher weight on the risks and costs. As for risks and costs the assessment is carried out with the default controls in place.
Item 17:	**Taking into account controls, do positive effects outweigh adverse effects?** In weighing up positive and adverse effects, consider clause 34 of the Methodology. Where possible combine groups of risks, costs and benefits or use other techniques such as dominant risks and ranking of risks. The weighing up process takes into account controls proposed in items 5, 7 (9), 12 and/or 15. Where this item is taken in sequence from items 14, 15 and 16 (i.e. risks are not negligible) it constitutes a decision made under clause 27 of the Methodology. Where this item is taken in sequence from items 11, 12 and 13 (i.e. risks are negligible, and there are external or public costs) it constitutes a decision made under clause 26 of the Methodology.
Item 18:	**(if 'no' from item 4 or item 17) Decline application for reassessment** (from item 4) The Act is silent on the situation if there is insufficient information to consider the application. However, sections 55-61 (section 63A(3)) are deemed to hold, therefore the HSNO decision maker concludes that the application for reassessment may be declined if there is insufficient information. (from item 17) The HSNO decision maker may decline the application under section 63A(6) after taking into account the effects of the substance and best international practices and standards. Section 63A(2)(b) notes that this modified reassessment process cannot result in an approval to import or manufacture the substance being revoked. Therefore, if the process results in a 'decline' decision, then the result is that the modified reassessment of the substance is not approved, and the existing controls remain in force.

[18] Clause 13 of the Methodology

Item 19:



(if 'yes' from items 13 or 17) Confirm and set controls

Controls have been considered at the earlier stages of the process (items 5, 7 (9), 12 and/or 15). The final step in the decision-making process brings together all the proposed controls, and reviews them for overlaps, gaps and inconsistencies. Once these have been resolved the controls are confirmed.

Appendix 3 – Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001

9 Quantities of class 6, 8, and 9 substances that must be under personal control of approved handler or secured

(1) The quantities of class 6, 8, and 9 substances specified in Schedule 1 must be—

(a) under the personal control of an approved handler; or

(b) secured so that a person cannot gain access to the substance unless the person has a key or other device used for operating locks.

(2) However, a class 6, 8 or 9 substance may be handled by a person who is not an approved handler if—

(a) an approved handler is present at the place where the substance is being handled; and

(b) the approved handler has provided guidance to the person in respect of the handling; and

(c) the approved handler is available at all times to provide assistance, if necessary, to the person while the substance is being handled by the person.

(3) Despite subclauses (1) and (2), a class 9 substance may be handled by a person who is not an approved handler if the substance is contained in sealed packaging.

(4) Subclause (3) does not apply during the following stages of the life cycle of the substance:

(a) formulation; and

(b) manufacture; and

(c) application.