



Environmental  
Protection Authority  
*Te Mana Rauhi Taiao*

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## EPA STAFF REPORT

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Application for approval to import or manufacture  
Method 240 SL Herbicide for release

APP203816

JANUARY 2022



## Overview

| Substance                             | Method 240 SL Herbicide  |
|---------------------------------------|--|
| Application code                      | APP203816  |
| Application type                      | To import or manufacture for release any hazardous substance under Section 28 of the Hazardous Substances and New Organisms Act 1996 (“the HSNO Act”)  |
| Applicant                             | Bayer CropScience Property Limited   |
| Purpose of the application            | To import or manufacture Method 240 SL Herbicide for release   |
| Date application formally received    | 05 June 2019   |
| Submission period                     | 19 June 2019 – 31 July 2019  |
| Submissions                           | Nine submissions were received. Three submissions supported the application and six opposed the application. Two submitters indicated that they wished to be heard at a public hearing and one reserved the right to be heard. |
| Information requests and time waivers | The timeframe for consideration of this application was waived under section 59 of the Act.  |

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# 1. Executive summary

## Background

- 1.1. The applicant Bayer CropScience Property Limited has submitted an application on 27 February 2019 to import or manufacture Method 240 SL Herbicide for release. It was given Application Number APP203816 and was formally received on 5 June 2019 as a notified Category C application.
- 1.2. The active ingredient, aminocyclopyrachlor, has not previously been approved in New Zealand. Aminocyclopyrachlor is currently not approved in Europe and Japan. It is approved in Australia, Canada and the USA.
- 1.3. Method 240 SL Herbicide is intended to be used as a herbicide on wilding conifers, gorse, broom, blackberry, thistles, other woody plants, broadleaf weeds and vines.
- 1.4. A variety of methods are proposed for application of Method 240 SL Herbicide. These range from broadcast (wide-dispersive) ground-based or aerial applications to targeted individual plant treatments (basal bark treatment, tree injection, cut stump/stem treatment).
- 1.5. Details on the hazard classifications and risk assessment can be found in the Science Memorandum.

## Hazardous properties

- 1.6. The classifications applicable to the active ingredient, aminocyclopyrachlor, are based on toxicological and ecotoxicological studies conducted using the technical grade active ingredient.
- 1.7. The following hazard classifications have been identified as applicable to aminocyclopyrachlor: Hazardous to soil organisms.
- 1.8. Aminocyclopyrachlor is not considered readily biodegradable. Aminocyclopyrachlor is considered persistent in the aquatic environment and in the soil environment. Aminocyclopyrachlor is not considered to be bioaccumulative.
- 1.9. The classifications applicable to Method 240 SL Herbicide were based on product data, the composition of the substance, and the properties of its components.
- 1.10. The following hazard classifications have been identified as applicable to Method 240 SL Herbicide (Table 1).

**Table 1: Hazard classifications of Method 240 SL Herbicide**

| Hazard endpoint                          | Classification              |
|--|-----------------------------|
| Hazardous to the terrestrial environment | Hazardous to soil organisms |

## Submissions

- 1.11. The application was publicly notified because this substance contained a new active ingredient that has not been approved in New Zealand.
- 1.12. Nine submissions were received during the public consultation period (19 June 2019 – 31 July 2019). Of these three submissions supported the application, and six opposed the application. Details are included in Table 5.
- 1.13. Two submitters indicated that they wished to be heard at a public hearing and one reserved the right to be heard.
- 1.14. Wellington Regional Council and Federated Farmers of New Zealand supported the application. Ngāi Tahu supported the application with conditions.
- 1.15. Members of the public and Apiculture New Zealand opposed the application, noting the events related to the active ingredient in the USA and expressing concerns regarding environmental exposure and safety.
- 1.16. More details are provided under section 5.

## Risk assessment

- 1.17. The EPA conducted quantitative human health and environmental risk assessments to determine if the amount of exposure that people and organisms may experience during use of the substance is likely to result in adverse effects. This is detailed in the Science Memorandum for Method 240 SL Herbicide.

## Human health effects

- 1.18. The human health risk assessment results showed that the exposure value for operators was lower than the Acceptable Operator Exposure Level (AOEL) without the use of Personal Protective Equipment (PPE). As such, it is considered that the risks to human health from the proposed use of Method 240 SL Herbicide are acceptable even without the use of appropriate PPE, application of Re-Entry Interval, or need for enforcement of a no-spray buffer zone to protect bystanders.
- 1.19. WorkSafe has assessed the available information for APP203816 (Method 240 SL Herbicide) and considered that, as the substance is classified as hazardous the environment (aquatic and terrestrial) only, the Health and Safety at Work (Hazardous Substances) Regulations

2017 do not apply, and identified no significant health and safety issues on the basis of the quantitative human health risk assessment provided by the EPA.

## Environmental effects

*Targeted application methods (basal bark treatment, cut stump/stem treatment, trunk injection and spot spraying/cut stubble)*

- 1.20. The environmental risk assessment for the targeted use patterns of Method 240 SL Herbicide showed that risks to the environment with suggested controls are considered negligible.

*Wide-dispersive application methods (broadcast ground-based and aerial)*

- 1.21. For wide-dispersive application methods, risks are considered negligible with controls for surface water, soil organisms, birds and pollinators. Risks have been identified as low to moderate for non-target plants outside of the targeted area and a data gap remains for non-target arthropods. This is further discussed under section 6 and in the Science Memorandum for this application.

## Summary of the Māori Impact Assessment

- 1.22. Kaupapa Kura Taiao (the EPA's Māori Policy and Operations team) has undertaken an assessment to consider potential impacts of Method 240 SL Herbicide on the economic, social, and cultural well-being of Māori, and the relationship of Māori with the environment, pursuant to sections 5(b), 6(d) and 8 of the HSNO Act.
- 1.23. Method 240 SL Herbicide is likely to have a positive effect on the relationship of Māori and their culture and traditions with their environment and taonga, including culturally significant species, resources, and places, and the customary values, practices and uses associated with these taonga.
- 1.24. Method 240 SL Herbicide is likely to have a positive effect on the ability and capacity of Māori to maintain their economic, social, and cultural well-being.
- 1.25. Ngā Mātāpono o Te Tiriti o Waitangi (the Principles of the Treaty of Waitangi) have been considered in relation to this application – no issues arise in this regard.

## Benefit assessment

- 1.26. The management of wilding conifers is an important biosecurity consideration for New Zealand. Several herbicides are currently being used, some of which have a less desirable human health and/or environmental profile than Method 240 SL Herbicide. It is considered that the introduction of an effective herbicide with a more favourable classification profile than existing substances is a significant benefit if the introduction of Method 240 SL Herbicide effectively leads to the reduction of the use of other herbicides.

- 1.27. The applicant considers that the approval and subsequent availability of Method 240 SL Herbicide would give rise to significant benefits, such as (see the application form for full details about the benefits provided by the applicant):
- Method 240 SL Herbicide is efficacious on wilding conifers at low application rates in comparison to current chemistries such that Method 240 SL Herbicide can replace applications of multiple products in a tank mix
  - Aminocyclopyrachlor has a favourable human health and environmental profile
  - Aminocyclopyrachlor and Method 240 SL Herbicide has very low mammalian toxicity, has low toxicity to non-target organisms and an environmental fate profile similar to other auxin herbicides
  - Method 240 SL Herbicide offers an important new tool for the integrated management of invasive wilding conifers. It will benefit the conservation of the unique New Zealand landscape. In this regard, the product will have a positive impact on New Zealand tourism
- 1.28. It is considered that the benefits of the substance outweigh the risks of the substance, if used in accordance with the appropriate controls and requirements.

## Recommendation

- 1.29. It is considered that there is sufficient information available to determine whether the benefits that will be derived from the approval of Method 240 SL Herbicide, are sufficiently significant to outweigh the uncertainty that exists around the risk to non-target plants outside of the targeted area (when wide dispersive application methods are used), and remaining data gaps for non-target arthropods.
- 1.30. It is acknowledged, however, that Method 240 SL Herbicide could be important to manage the biosecurity issue of wilding conifers, and that the applicant may wish to provide data to support the benefits as claimed in the application form. Additionally, the applicant could provide data to fill the environmental data gaps. Provision of these data would provide more information to the Decision-Making Committee to consider whether the benefits do outweigh the risks.
- 1.31. It is therefore recommended that the Committee approves with controls the application to import or manufacture Method 240 SL Herbicide for release.

## 2. Background

### Use pattern

- 2.1. Method 240 SL Herbicide is a soluble liquid concentrate which is diluted in water (product may also be diluted with a basal oil adjuvant). The applicant seeks to have Method 240 SL Herbicide approved for ground based and aerial application for the control of wilding conifers and other woody weeds on non-crop farmland and conservation land such as native bush, recreational and tourist areas and on industrial sites such as railways, roadways and utility rights of way.
- 2.2. Application will be at the rate of 0.3 – 1.3 litres of product per hectare (L/ha), diluted in 100-1000 L/ha water, which is equivalent to 0.072 – 0.312 kg/ha of aminocyclopyrachlor. Only one application per treatment site is envisaged.
- 2.3. Several application methods are envisaged, these include:
- Drill & fill (also called tree trunk injection)
  - Cut stump treatment
  - Ground Basal Bark Application (GBBA)
  - Aerial Basal Bark Application (ABBA)
  - Ground-based broadcast application (application via tractor/quad), for instance to bare soil, or low vegetation
  - Aerial Foliar Spray Application (AFSA).
- 2.4. The GABBA, ABBA, AFSA and Drill and Fill application methods are described in publications from the National Wilding Conifer Control Programme (National Wilding Conifer Control Programme 2019b, National Wilding Conifer Control Programme 2019a, National Wilding Conifer Control Programme 2019c).
- 2.5. These application methods can be roughly grouped in “targeted” and “dispersive” application methods based on their inherent potential for off-target movement.

**Table 2: Types of application methods envisaged for Method 240 SL Herbicide**

| Category   | Application method                          |
|--|---|
| Targeted – individual plant treatment or spot spraying | Drill and Fill (also called tree injection) |
|  | Spot spraying, cut stubble                  |
|  | Ground Basal Bark Application (GBBA)        |
|  | Aerial Basal Bark Application (ABBA)        |
| Broadcast - wide dispersive                            | Ground-based broadcast spray                |

| Category | Application method                     |
|----------|--|
|          | Aerial Foliar Spray Application (AFSA) |

## Regulatory status

- 2.6. Aminocyclopyrachlor, the active ingredient in Method 240 SL Herbicide, has not been previously approved in New Zealand for use as an herbicide; however, a containment application was approved by the EPA in October 2017 for the import and experimental use of up to 10 litres Method 240 SL Herbicide. Aminocyclopyrachlor is registered internationally, including in the USA (vegetation management nationwide plus privately held non-hayed rangeland and non-hayed perennial grasslands managed as rangeland in Arizona, New Mexico, Oklahoma, and Texas), Canada (pastures, rangelands and various non-crop sites), and Australia (APVMA approval number 65953; however, there is no associated product registration or known use).
- 2.7. Within one year of aminocyclopyrachlor's registration for use on turf (trade name: Imprelis®) in the USA, a Stop Sale, Use, or Removal order was issued by the US EPA as voluminous claims of non-target plant damage were reported. Imprelis®, formerly registered for use by trained commercial applicators only, has subsequently been implicated in more than 56,000 non-target plant incidents in the USA and was voluntarily cancelled in 2016. Only in 2020, nearly 10 years after the first Imprelis® incidents were reported, did the US EPA grant an expansion from the vegetation management use pattern to include new uses on private rangeland in four states, and this product (Invora®, containing dual active ingredients aminocyclopyrachlor and triclopyr) is sold only as a restricted use pesticide, meaning it is not available for sale to the general public because it "May Injure (Phytotoxic) Susceptible, Non-Target Plants".

## Impurities

- 2.8. No impurity limits for aminocyclopyrachlor have been identified by the Food and Agriculture Organization of the United Nations (FAO), the Australian Pesticides and Veterinary Medicines Authority (APVMA), or the EPA.

## Life cycle of the substance

- 2.9. The applicant has described the lifecycle of Method 240 SL Herbicide as follows:
- It will be imported into New Zealand packaged ready for sale in 1 L, 3 L, 5 L, 10 L or 20 L HDPE (high density polyethylene) packaging.
  - Prior to distribution, Method 240 SL Herbicide will be stored into chemical warehouses for bulk storage.

- From these warehouses, the product will be transported to agrochemical distributors with dedicated pesticide storage facilities.
  - Containers will be transported by sea, air, rail and road throughout New Zealand.
  - It is expected that use according to the label will eliminate the need to dispose of any unused substance. Once empty, it is recommended that the container is triple rinsed and the rinsate added to the spray tank. Unused diluted spray solution may also be disposed of at a landfill or hazardous waste treatment plant approved to accept this type of waste. The applicant recommends that empty rinsed containers be returned through Agrecovery for recycling.
- 2.10. The applicant explained that *“the overall management of the substance in respect of transport, storage, application and container disposal will be in compliance with controls imposed under the HSNO Act, Worksafe Act, label instructions, the Code of Practice for the Management of Agrichemicals [NZS 8409:2004] and the transport standard for dangerous goods on land [NZS 5433:2012].”*

### 3. Process, consultation, and notification

- 3.1. The application was formally received on 5 June 2019.
- 3.2. It was considered that the application would be of significant public interest. This was because Method 240 SL Herbicide contains a new active ingredient that has not previously been assessed under the Act and it was considered there would be public interest in its intended use that includes conservation areas and as such, the application was publicly notified.
- 3.3. The Ministry for the Environment, the Ministry of Health, the Agricultural Compounds and Veterinary Medicines (ACVM) group of the Ministry for Primary Industries (MPI) and the Department of Conservation (DOC) were advised of the application and notified of the submission period. No comments were received.
- 3.4. WorkSafe New Zealand (WorkSafe) was also notified of this application in order to receive their assessment on aspects of this application related to the Health and Safety at Work Act 2015 (HSW Act) and Health and Safety at Work (Hazardous Substances) Regulations 2017 (HSW HS Regulations). The feedback from WorkSafe is provided in section 6.
- 3.5. The application was open for submissions from 19 June 2019 to 31 July 2019.
- 3.6. Given the volume of information received from the applicant for evaluation, the consideration period of the application was postponed in accordance with section 59 of the HSNO Act.
- 3.7. After completing an initial risk assessment, the EPA has sent a letter requesting further information from the applicant on risks to non-target plants and on the US registration status of aminocyclopyrachlor on 22 April 2020.

- 3.8. A reply was received from the applicant on 31 July 2020, the results of which were incorporated in the EPA assessment, where relevant.
- 3.9. A further request for information was sent on 25 November 2020 to seek information on the soil ecotoxicity, the effects on bees and effects on other beneficial/non-target arthropods of Method 240 SL Herbicide.
- 3.10. A reply from the applicant was received on 7 December 2020, including a data waiver for the earthworm reproduction test, honeybee larval toxicity test, single exposure and chronic toxicity tests for aminocyclopyrachlor/Method 240 SL Herbicide.
- 3.11. After further exchanges, the applicant indicated to the EPA on 30 April 2021 that they would be conducting an earthworm reproduction test to address the data gap identified by the EPA and provide further information on their intended stewardship programme for Method 240 SL Herbicide, as well as further supporting evidence related to non-target arthropods information on the substance.
- 3.12. This additional information was received by the EPA on 23 June 2021.
- 3.13. In preparing this report, the following documents and information were taken into account:
  - the application form
  - confidential material submitted by the applicant with the application form, including toxicological, ecotoxicological and environmental fate studies on aminocyclopyrachlor, Method 240 SL Herbicide and other aminocyclopyrachlor-containing substances
  - the submissions
  - the Māori Impact Assessment
  - additional information received from the applicant at EPA's request
  - information received from WorkSafe
  - Registration documents from the US EPA and Canada PMRA
  - other available information.

## 4. Hazardous properties

- 4.1. The hazard classifications of aminocyclopyrachlor determined by the EPA are: Hazardous to soil organisms (Table 3). Physico-chemical, mammalian toxicology and ecotoxicology studies were provided for technical grade aminocyclopyrachlor. Information from these studies was used to classify the substance.

**Table 3: Hazard classifications of aminocyclopyrachlor**

| Hazard endpoint                          | Classification              |
|--|-----------------------------|
| Hazardous to the terrestrial environment | Hazardous to soil organisms |

- 4.2. Aminocyclopyrachlor is of low acute toxicity in mammals and should not be classified for acute toxicity (oral/dermal/inhalation). It is not a skin or eye irritant, nor a contact sensitiser. Aminocyclopyrachlor was found not to be genotoxic, carcinogenic, and does not cause reproductive or developmental toxicity. Aminocyclopyrachlor does not induce target organ systemic toxicity.
- 4.3. Based on the negative Log KOW values of -1.01 (pH 4) and -2.478 (pH 7), aminocyclopyrachlor is considered hydrophilic, having a greater affinity for the aqueous phase (ie. not lipophilic). The active ingredient aminocyclopyrachlor is considered to have a low potential for bioaccumulation. No whole fish bioconcentration study is considered necessary based on the negative Log KOW values
- 4.4. The hazard classification of Method 240 SL Herbicide determined by the EPA is: hazardous to soil organisms (Table 4). The hazard classification of Method 240 SL Herbicide was determined based on the information provided by the applicant (including toxicity and ecotoxicity studies), information on the individual components of Method 240 SL Herbicide, mixture rules and other available information.

**Table 4: Hazard classification of Method 240 SL Herbicide**

| Hazard endpoint                          | Classification              |
|--|-----------------------------|
| Hazardous to the terrestrial environment | Hazardous to soil organisms |

- 4.5. Mammalian toxicity studies with Method 240 SL Herbicide indicate it is of low acute toxicity in mammals and should not be classified for acute toxicity (oral/dermal/inhalation). It is not a skin or eye irritant, or a contact sensitiser. Based on mixture rules it was found not to be genotoxic, carcinogenic, and does not cause reproductive or developmental toxicity. It also does not induce target organ systemic toxicity.

## 5. Submissions

- 5.1. Nine submissions were received for this application (see Appendix C of this report for the full list of submitters).
- 5.2. Three submissions supported the application and six opposed the application (see Table 5 for more details).

**Table 5: List of submitters and submissions**

| Group/organisation   | Position                | Appearance at a hearing        |
|--|-------------------------|--------------------------------|
| Greater Wellington Regional Council                                | Support                 | no                             |
| Federated Farmers of New Zealand                                   | Support                 | no                             |
| Dr Benita Wakefield and Stephanie Dijkstra, Te Runanga o Ngāi Tahu | Support with conditions | yes                            |
| Willem Aalderink   | Oppose                  | no                             |
| Helena Fierlinger  | Oppose                  | no                             |
| Hadley Fierlinger  | Oppose                  | no                             |
| Philip Fierlinger  | Oppose                  | no                             |
| NZ Outside Ltd (Mary Hobbs)  | Oppose                  | yes                            |
| Apiculture New Zealand   | Oppose with conditions  | Reserves the right to be heard |

- 5.3. The EPA has used the information gained from submissions, where relevant, to inform our risk assessment. Key issues raised in submissions are highlighted below. The views summarised below are the submitters views on the application and do not represent the EPA views.

### Submissions in support of the application

- 5.4. Submissions from Greater Wellington Regional Council and Federated Farmers of New Zealand highlighted that the use of aminocyclopyrachlor/Method 240 SL Herbicide would constitute a better alternative to control the considerable threat of wilding pines and woody weeds compared to the currently used herbicides that are a combination of triclopyr, picloram, aminopyralid or metsulfuron-methyl with a less environmentally friendly profile. They also indicated that no use of surfactant is required for Method 240 SL Herbicide, while surfactants are regularly used for the current herbicides.
- 5.5. The submission from Te Runanga o Ngāi Tahu highlighted the fact that the currently available alternatives to Method 240 SL Herbicide have a less favourable environmental profile with a higher use rate than Method 240 SL Herbicide. The following controls are suggested:
- Restriction to helicopter only aerial spraying

- Public notification when spraying activities are undertaken on public and conservation land
- Buffer or exclusion zones around identified mahinga kai sites, habitats and surrounding environments.

## Submissions that opposed the application

- 5.6. One submitter, NZ Outside Ltd, expressed general concern around introducing a new herbicide into New Zealand, and advocating for the use of organic solutions in New Zealand.
- 5.7. One submitter, a member of the public, opposed the application in its current form, highlighting issues with aminocyclopyrachlor persistence in the environment, the lack of research on the formulated product Method 240 SL Herbicide and flagging information related to the registration status of aminocyclopyrachlor containing products in the United States.
- 5.8. Three submitters, all members of the public, opposed the application, being opposed to the introduction of new chemicals in New Zealand in general.
- 5.9. Apiculture New Zealand provided a submission highlighting the fact that the areas for which the use of Method 240 SL Herbicide would be allowed constitute significant areas for honeybee and honey beekeepers. They also expressed concerns in relation to the potential use of surfactants with the substance that might lead to honeybee toxicity and asks the EPA considers clear label instructions, that this product does not require spray tank adjuvants to be used (in order to protect honeybees). Apiculture New Zealand also asks the EPA to consider the inclusion of label recommendations for the protection of honeybees. They are not in favour of the release of Method 240 SL Herbicide without the EPA undertaking a review of surfactants and their ecotoxic effects in the NZ environment, especially the indigenous environment and reserve the right to be heard after consideration of the EPA's evaluation and Review report for the application.

## EPA response to the submissions

### Aerial spraying

- 5.10. Te Runanga o Ngāi Tahu recommended that Method 240 SL Herbicide be approved by helicopter only where aerial spraying is deemed necessary. The EPA notes that the applicant, Bayer, requested this product be approved by helicopter and fixed wing for aerial application.
- 5.11. In estimating spray drift exposure from aerial application, the EPA used the model AgDISP, according to its risk assessment methodology, which takes into consideration both types of aircrafts, helicopter and fixed wing.
- 5.12. The EPA identified that aerial broadcast application by helicopter or fixed wing would equally result in high risks or uncertainties in relation to non-target vegetation (including uncertainties

around non-target arthropods). For other areas of the risk assessment, the EPA did not identify risks above the level of concern from either helicopter or fixed wing application.

- 5.13. Because the calculated risk profile of Method 240 SL Herbicide when applied either by helicopter or fixed wing is the same, the EPA does not propose a restriction for helicopter application only.
- 5.14. Overall, the EPA considers that the introduction of an effective herbicide with a more favourable classification profile than existing substances is a significant benefit if the introduction of Method 240 SL Herbicide effectively leads to the reduction of the use of other herbicides.

### **Public notification**

- 5.15. Te Runanga o Ngāi Tahu recommended that Method 240 SL Herbicide be approved with a control to publicly notify when spraying activities are undertaken on public and conservation land.
- 5.16. The EPA notes that use of Method 240 SL Herbicide would be on unimproved pasture, regional parks, or conservation land only. In addition, it is noted that the risk assessment results showed that the risks to human health (including bystanders) from the proposed use of Method 240 SL Herbicide are acceptable without additional controls.
- 5.17. The EPA acknowledges, however, Ngāi Tahu's perspective that having a notification requirement would increase transparency of communities in areas where the substance could be used. The EPA notes that, the New Zealand Standard for the Management of Agrichemicals NZS 8409:2021<sup>1</sup> would apply to any person using Method 240 SL Herbicide as this standard applies to the management of plant protection products in a range of situations including forestry and conservation. In particular, Appendix G of the standard provides guidance regarding notification and signage for application of plant protection products.
- 5.18. Given the existing requirements in the standard and the risk assessment results, the EPA did not propose additional controls for notification requirements.

### **Buffer or exclusion zones around mahinga kai sites, habitats and surrounding environments**

- 5.19. Te Runanga o Ngāi Tahu recommended that exclusion / buffer zones are clearly identified to protect mahinga kai sites, habitats and surrounding environments.

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<sup>1</sup>NZS08409:2021 New Zealand Standard Management of agrichemicals (superseding NZS 8409:2004). Standard New Zealand – Te Mana Tautikanga O Aotearoa. First published: August 2021.

- 5.20. The EPA is proposing controls to mitigate off-target exposure and mitigate potential risks of Method 240 SL Herbicide to non-target organisms. This includes downwind buffer zone requirements for broadcast ground-based or aerial application.
- 5.21. The EPA is also proposing a control to require a pre-application assessment of the treatment area for broadcast applications in order to mitigate potential risks to sensitive non-target areas such as mahinga kai sites, sensitive susceptible non-target crops or desirable vegetation, and beehives.

### Application rate

- 5.22. Greater Wellington Regional Council, Te Runanga o Ngāi Tahu and Federated Farmers of New Zealand indicated that, based on the information provided by the applicant, the active ingredient in Method 240 SL Herbicide can be used at lower rates than other currently used herbicides, in tanks mixes, and this will reduce the amount of chemicals released into the environment.
- 5.23. The EPA notes that the proposed application rate of Method 240 SL Herbicide when used as a broadcast application method is up to 1.3 L substance/ha which is equivalent to 312 g aminocyclopyrachlor/ha. According to the applicant, mixtures of herbicides containing triclopyr ester, dicamba, picloram, and aminopyralid ('TPDA') are intended for the same use pattern as Method 240 SL Herbicide at the following application rates:
- 18 kg triclopyr/ha
  - 2 kg picloram/ha
  - 5 kg dicamba/ha
  - 0.28 kg aminopyralid/ha
- 5.24. The above-mentioned application rates are also cited by other sources (eg National Wilding Conifer Control Programme<sup>2</sup>). The EPA notes that aminocyclopyrachlor may provide an alternative to existing herbicides (eg TPDA), provided that users will be satisfied with aminocyclopyrachlor efficacy. The EPA also notes that proposed application rates for Method 240 SL Herbicide are lower than existing products (TPDA).

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<sup>2</sup> National Wilding Conifer Control Programme. Aerial Foliar Spray Application (AFSA). Version1: March 2019. <https://www.wildingconifers.org.nz/assets/Uploads/11975-Wilding-Conifers-Good-Practice-AFSA-MAR-v12.pdf>

### **Better profile than existing solutions**

- 5.25. Appendix A provides a comparison between currently approved treatments for the control of wilding conifers and Method 240 SL Herbicide. The EPA notes that, when compared on the basis of their respective classifications, Method 240 SL Herbicide has a more favourable classification profile than other approved herbicides.

### **Persistence in the environment**

- 5.26. A full assessment of the accumulation potential of aminocyclopyrachlor from the use of Method 240 SL in the environment has been conducted in the Science Memorandum. While initially not provided, an earthworm reproduction study was provided by the applicant, allowing a better characterization of the risks for soil-dwelling organisms. Given the nature of the substance and its intended use, it is considered very unlikely that it would be applied year on year on the same treatment area.

### **Use of surfactants and impact on pollinators**

- 5.27. A full assessment of the risks to pollinators is provided in the Science Memorandum. The main conclusions are reported under section 6. Aminocyclopyrachlor and the associate formulation Method 240 SL herbicide have low acute toxicity to bees. Acute risks are below the level of concern. No chronic data were provided, but given the nature of the substance (herbicide, only one application intended), and with proposed control to limit application to plants not in flower, it is estimated that the risks of the substance (including potential surfactants) will be limited.

## **6. Risk assessment**

- 6.1. During the importation, manufacture, transportation, storage, and disposal of this substance, it is expected that exposure is unlikely to occur and that the proposed controls and other legislative requirements will sufficiently mitigate the risks associated with these stages of the substance lifecycle to a negligible level. These include the existing Hazardous Substances Notices around packaging, identification, emergency management and disposal of hazardous substances, the Land Transport Rule 45001, Civil Aviation Act 1990, Maritime Transport Act 1994 and New Zealand's health and safety at work requirements.
- 6.2. In contrast, it is considered that there is the potential for exposure to humans and the environment to occur during the use phase of the substance. Therefore, a human health and environmental risk assessment was carried out. In this assessment, the above controls and legislative requirements were taken into account when identifying controls to mitigate risks associated with use of the substance.

- 6.3. Full details of the risk assessment are available in the EPA Science Memorandum for Method 240 SL Herbicide (EPA 2021).

## Use pattern

- 6.4. Method 240 SL Herbicide is a soluble liquid concentrate which is diluted in water (100-1000 litres of water per hectare, product may also be diluted with a basal oil adjuvant). The applicant seeks to have Method 240 SL Herbicide approved for ground based and aerial application for the control of wilding conifers and other woody weeds on non-crop farm land and conservation land such as native bush, recreational and tourist areas and on industrial sites such as railways, roadways and utility rights of way.
- 6.5. A variety of application methods are proposed for Method 240 SL Herbicide. These range from broadcast (wide-dispersive) ground-based or aerial applications to targeted individual plant treatments. The type of application method is considered the crucial factor in assessing likelihood of exposure to non-target organisms, and/or risk of off-target movement of the substance. For example, exposure to non-target organisms and/or off-target movement (via spray drift and runoff) of the substance is much greater from broadcast (wide-dispersive) application methods than from individual plant treatments. Individual plant treatments are lower risk since application is targeted (eg. there is almost no risk of spray drift from application via trunk injection), and less dispersive.
- 6.6. The proposed application rate of Method 240 SL Herbicide when used as a broadcast application method is up to 1.3 L substance/ha which is equivalent to 312 g aminocyclopyrachlor/ha. Only one application per year is intended.
- 6.7. Several application methods are envisaged with various degrees of dispersion, from individual plant treatment to aerial dispersive, these include:
- Drill & fill (also called tree trunk injection)
  - Cut stump treatment
  - Ground Basal Bark Application (GBBA)
  - Aerial Basal Bark Application (ABBA)
  - Ground-based broadcast application (application via tractor/quad), for instance to bare soil, or low vegetation.
  - Aerial Foliar Spray Application (AFSA).
- 6.8. The GABBA, ABBA and Drill and Fill application methods are described in publications from the National Wilding Conifer Control Programme (National Wilding Conifer Control Programme 2019b, National Wilding Conifer Control Programme 2019a, National Wilding Conifer Control Programme 2019c).

## Human health effects

- 6.9. Method 240 SL Herbicide is intended to be supplied to specific professional users, having undertaken a stewardship programme designed by the applicant. Users are expected to apply the substance by different applications methods, as per wilding conifer control guidelines. It is likely that users will be exposed to the substance during the application stages of the substance.
- 6.10. Predicted operator exposures to aminocyclopyrachlor are below the Acceptable Operator Exposure Level (AOEL) for each use pattern, even without the use of personal protective equipment (PPE). Therefore, operator exposures are not expected to result in adverse health effects. Although the quantitative risk assessment indicates that PPE is not required to ensure that exposures are below the AOEL, it is considered good practice that personal protective equipment is worn to minimise risks to the health and safety of workers.
- 6.11. No models are available to assess re-entry for a product used on wilding conifers and other nuisance weeds. It is believed that the results of modelling “scouting” activity for cereals would represent a worst-case situation and accordingly those results are presented. Predicted exposures to aminocyclopyrachlor for workers re-entering and working in areas where Method 240 SL Herbicide has been applied are below the AOEL. No re-entry intervals are necessary.
- 6.12. Estimated bystander exposure from spray drift after application of Method® 240 SL Herbicide to wilding pines and other nuisance weeds is below the AOEL. No buffer zone is required to protect bystanders.

## WorkSafe’s assessment

- 6.13. WorkSafe were notified of the application and have provided the following comment on whether the HSW controls manage the risk to people from workplace activities.

*“WorkSafe has assessed the available information for APP203816 (Method 240 SL Herbicide), as this substance is classified as hazardous to the environment (aquatic and terrestrial) only, the Health and Safety at Work (Hazardous Substances) Regulations 2017 do not apply.”*

*“WorkSafe was provided with a quantitative human health risk assessment for this substance undertaken by the EPA, no significant health and safety issues were identified.”*

*“It is WorkSafe’s opinion that in developing a new herbicide active that has no physical or human health classifications the PCBU is meeting it’s upstream duties under sections 39-42 of HSWA.”*

## Impurities

- 6.14. No impurity limits for aminocyclopyrachlor have been identified by FAO, APVMA, or the EPA.

## Environmental effects

- 6.15. It is noted that the applicant provided studies in regard to the environmental fate and ecotoxicity of aminocyclopyrachlor (and metabolites), as well as a number of studies on the formulated substance and similar aminocyclopyrachlor-containing substances. The risks to a range of environmental receptors, including plant, invertebrate and vertebrate species living in aquatic, groundwater, sediment and terrestrial environments from the use of aminocyclopyrachlor are considered as a proxy for the risks from Method 240 SL Herbicide. Full details can be found in the Science Memorandum.
- 6.16. The use pattern proposed for Method 240 SL Herbicide, includes more or less wide dispersive applications methods, from very localized (individual plant treatment via tree injection, basal bark treatment, stem treatment or spot spraying) to more dispersive (broadcast application via either ground or aerial methods). This results in different exposure levels and thus different risks levels for the environment.
- 6.17. Full details related to the risk assessment for the different environmental compartments and application methods is given in the Science Memorandum for this application (EPA 2021). The main conclusions are reported here below.
- 6.18. Separate conclusions are made for wide-dispersive application methods (broadcast ground-based and aerial), and individual (targeted and localised) plant treatments since application method is the key factor determining the likelihood of exposure and thus risks to non-target organisms.

### **Wide-dispersive application methods (broadcast ground-based and aerial)**

- 6.19. For wide-dispersive application (ground-based and aerial) of Method 240 SL Herbicide, a summary of the environmental risk assessment conclusions is presented in Table 6.

**Table 6: Summary of environmental risk assessment conclusions for application of Method 240 SL Herbicide by wide-dispersive application methods**

| Conclusions                       | Area of environmental risk assessment            | Risk management         |
|-----------------------------------|--|-------------------------|
| No risk identified                | Aquatic organisms (pelagic)                      | No controls proposed    |
|                                   | Groundwater communities                          |                         |
|                                   | Soil-dwelling organisms and micro-organisms      |                         |
|                                   | Birds  |                         |
|                                   | Acute risks to honeybees                         |                         |
| High risk identified              | Extremely toxic to susceptible non-target plants | Controls proposed       |
|                                   | Leaching to and contamination of groundwater     | Label statement applied |
| Data gaps, considered significant | Chronic risk to adult honeybees                  | Controls proposed       |
|                                   | Risk to honeybee larvae                          |                         |
|                                   | Risk to beneficial non-target arthropods         | Label statement applied |

6.20. Where no risks from use of Method 240 SL Herbicide were identified, no controls are proposed.

6.21. Two critical areas of the environmental risk assessment are identified for wide-dispersive application:

- Extremely toxic to susceptible non-target plants, including native species; and,
- High risk of leaching to and contamination of groundwater (no risk identified for groundwater communities).

*Critical risk to non-target plants*

6.22. The active ingredient aminocyclopyrachlor is extremely toxic to susceptible non-target plants, including native species. The likelihood of exposure of non-target plants must be considered as high for wide-dispersive application methods.

6.23. The EPA is unable to conclude that risks to non-target plants, especially for susceptible species, are negligible for wide-dispersive uses. Given the extreme toxicity of aminocyclopyrachlor, and its persistence and mobility, some level of risk is likely to remain.

6.24. In response to these concerns being raised, a range of label statements and a stewardship discussion were introduced by the applicant to manage the use of Method 240 SL Herbicide and address the high risk to non-target plants.

*High risk of leaching to groundwater*

- 6.25. Leaching to and contamination of groundwater of aminocyclopyrachlor following use of Method 240 SL Herbicide is highly likely for wide-dispersive application methods. This is confirmed by the Sci-Grow groundwater modelling, column leaching study, and terrestrial field dissipation studies and is expected due to the highly mobile and persistent environmental fate characteristics of aminocyclopyrachlor. No risks are identified for aquatic groundwater communities.
- 6.26. The extent of leaching to and contamination of aminocyclopyrachlor is ultimately dependent on specific local conditions, which is greatest in vulnerable areas (eg. where the water table is shallow). A label statement to warn the user of the risk of leaching of aminocyclopyrachlor will be applied to the product label. It is recommended that Method 240 SL Herbicide is applied at a time of active plant growth to maximise plant uptake. It should be noted that the contamination of groundwater potentially cannot be mitigated in all situations.
- 6.27. Applying Method 240 SL Herbicide at a time of active plant growth maximises the role of plant uptake in the dissipation of aminocyclopyrachlor, reducing the amount of aminocyclopyrachlor available for leaching. Application of Method 240 SL Herbicide to bare ground is therefore not recommended.

*Significant data gaps*

- 6.28. The following data gaps are considered significant for application of Method 240 SL Herbicide via wide-dispersive application methods (ground-based and/or aerial):
- Chronic toxicity to adult honeybees
  - Toxicity to honeybee larvae
  - Standard laboratory testing with the parasitic wasp *Aphidius rhopalosiphi* and predatory mite *Typhlodromus pyri*
- 6.29. These data gaps are considered significant for wide-dispersive application since the likelihood of exposure is high, particularly in conservation land including native bush, and given that aminocyclopyrachlor is both persistent and systemic. Chronic risks to adult honeybees, risks to honeybee larvae and risks to beneficial non-target arthropods cannot be assessed and are unknown.
- 6.30. The following control (additional label statement) is proposed to address the uncertainties regarding chronic toxicity to adult honeybees and toxicity to honeybee larvae:
- A person who applies the agrichemical must ensure the application plot does not include any—*
- (a) bees that are foraging; or*

*(b) plants (including trees and weeds) that—*

*(i) are likely to be visited by non-target invertebrate pollinators; and*

*(ii) are either—*

*(a) in flower or part flower; or*

*(b) likely to flower within the period specified by the Authority as an additional control for the substance.*

6.31. The safety of Method 240 SL Herbicide has not been demonstrated for non-target arthropods and the risk to non-target arthropods from the use of Method 240 SL Herbicide is unknown.

#### **Targeted individual (localised) plant treatments:**

6.32. For targeted application of Method 240 SL Herbicide, a summary of the environmental risk assessment conclusions is presented in Tabl 7.

**Table 7: Summary of environmental risk assessment conclusions of Method 240 SL Herbicide for targeted application**

| <b>Conclusions</b>                        | <b>Area of environmental risk assessment</b>     | <b>Risk management</b>                 |
|---|--|--|
| No risk identified                        | Aquatic organisms (pelagic)                      | No controls proposed                   |
|   | Groundwater communities                          |  |
|   | Soil-dwelling organisms and micro-organisms      |  |
|   | Birds  |  |
|   | Acute risks to honeybees                         |  |
| Low risk identified                       | Extremely toxic to susceptible non-target plants | Proposed controls and label statements |
|   | Leaching to and contamination of groundwater     | Label statement                        |
| Data gaps, considered lesser significance | Chronic risk to adult honeybees                  | Controls proposed                      |
|   | Risk to honeybee larvae                          |  |
|   | Risk to beneficial non-target arthropods         | Label statement applied                |

6.33. The use of more targeted and directed application methods is considered to reduce the identified risks for non-target plants and risk of leaching to groundwater to low since the likelihood of off-target exposure is reduced compared with broadcast application methods.

6.34. The data gaps identified (chronic and larval toxicity tests for honeybees, and non-target arthropods) are considered of lesser significance for individual plant treatments since treatment is targeted (localised), thus the likelihood of exposure is minimal.

- 6.35. Risks to the environment from targeted application of Method 240 SL Herbicide are considered low overall, however due to the specific characteristics of aminocyclopyrachlor some controls are also proposed for targeted application.

### Conclusions for environmental effects

- 6.36. For the wide-dispersive application methods, uncertainties remain around the residual level of risks for groundwater and non-target plants.
- 6.37. In response to these uncertainties being identified, the applicant explained that they intend to provide stewardship training to any purchaser or end-user of the product as a requirement of purchase. The applicant also indicated that the main end-users of Method 240 SL Herbicide are expected to be the Department of Conservation, the Ministry for Primary Industries and the various Trusts involved in the wilding conifer program, local councils and spray contractors.
- 6.38. It is considered that provided these measures are followed then the risks to the environment are considered negligible, except for non-target plants and potentially to non-target-arthropods (given the data gaps) for which some level of risk is likely to remain for wide dispersive application.
- 6.39. It is noted that there is too much uncertainty related to industrial sites, roads, railways, utility rights of way and bare soils, for which the leaching in the environment can be more important than application on soil and it is therefore proposed to not approve these uses.

## Assessment of impacts on cultural receptors (Māori Impact Assessment)

### Impact on Papatūānuku (Land and soils)

- 6.40. Method 240 SL Herbicide is not likely to have a significant impact on Papatūānuku (land and soils) including Te Aitanga a Punga (soil dwelling organisms). See section 3 in Appendix A for more information regarding Papatūānuku.

### Impact on Ngā otaota (Plants)

- 6.41. As the intended range of target species is reasonably broad i.e. wilding conifers, gorse, broom, blackberry, thistles, other woody plants, broadleaf weeds and vines, Method 240 SL Herbicide could be used in a variety of receiving environments, for example: Recreation areas, waterways, parks, reserves, and conservation estate; Arable land, pastoral farmland, high country runs; Rural and urban environments, and; Industrial sites and infrastructure networks e.g. within road reserves, drainage reserves, railway corridors, and waste management facilities.

- 6.42. Many of these receiving environments are publicly accessible places or private land where taonga plant materials may be gathered for uses such as kai (food), rongoā (medicine and healing), raranga (weaving), mahi toi (art), and ritenga (rituals).
- 6.43. Method 240 SL Herbicide is proposed to be applied using individual plant treatments and wide dispersive methods. The latter include ground-based broadcast spraying and aerial spraying. Individual plant treatments, where individual specimens are targeted as opposed to broadcast spraying tracts of vegetation, include basal bark treatment, cut stump / stem treatment, trunk injection, and spot spraying, using handheld equipment, knapsack sprayers, and precision spraying from helicopter.
- 6.44. Māori are likely to prefer individual treatments over wide dispersive methods, as the former have smaller exposure footprints than the latter, and therefore less potential to adversely affect culturally significant receptors.
- 6.45. A key group of target plants is wilding conifers. These self-sowing and rapidly spreading trees are an issue in many places across Aotearoa, particularly in the central North Island and South Island high country where dense incursions are changing the ecological and visual character of entire landscapes. Some of the most severe incursions occur within iconic landscapes widely marketed for international and domestic tourism and are located mostly within the rohe of Ngāi Tahu.
- 6.46. Landscapes, and the geographical features within them, are also important because they are an integral part of Māori identity and are often cited in pepeha (tribal sayings) to identify oneself to others.
- 6.47. Wilding conifers also outcompete native species in scrubland and regenerating native bush that provide a habitat and food source for culturally significant fauna. Such areas are common in Aotearoa.
- 6.48. Method 240 SL Herbicide has potential to harm to culturally significant otaota (plants) including iconic species such as pūhā (smooth leafed sowthistle), harakeke (NZ flax) and kawakawa (NZ pepper tree). As Method 240 SL Herbicide is specifically designed to kill plants and vegetation, fatality of valued otaota is expected within target areas, especially in relation to wide dispersive application methods.
- 6.49. In respect of wilding conifers, treatments where Method 240 SL Herbicide is delivered directly into the crown, foliage or stems of individual trees are likely to be favoured by Māori over wide dispersive applications, as this would limit cultural by-kill and reduce chemical load on the environment.
- 6.50. Irrespective of whether Method 240 SL Herbicide is used on public or private land, Māori may be concerned about the potential for cross boundary spray drift or overspray to affect taonga

species within adjoining land and waterways, especially in relation to wide dispersive applications.

- 6.51. The controls proposed to be assigned to Method 240 SL Herbicide should be sufficient for minimising any potential adverse effects associated with this substance.
- 6.52. In addition to controls, other aspects of the use pattern for Method 240 SL Herbicide may be reassuring to Māori. For example, spraying Method 240 SL Herbicide in late spring or summer during active plant growth periods to maximise absorption will reduce availability of this substance for run-off and leaching. Furthermore, applications are not likely to target the same area annually, thereby enabling taonga plants to re-establish. It is noted a study provided by the applicant indicates that at 12 months post-application, Method 240 SL Herbicide did not appear to impair establishment of pūhā (sow thistle) at multiple spray trial sites.
- 6.53. Method 240 SL Herbicide will only be used by professionals (e.g. commercial spraying contractors) who are likely to be appropriately trained and follow industry-accepted practices and standards. It will not be available for home use by novices. As such, Method 240 SL Herbicide would likely be applied with due diligence and care to minimise any adverse impacts on environments and communities.
- 6.54. In terms of raising awareness of potentially exposed cultural resources, access to private land is controlled and landowners / land users have an opportunity to advise gatherers where Method 240 SL Herbicide has been or is planned to be used. It is anticipated that applications in public areas will be managed appropriately including use of signage and exclusion zones to protect gatherers and the general public.
- 6.55. On a contrary note, it is acknowledged that in some circumstances Māori may prefer that gorse was not eliminated at certain locations due to the ecological benefits it offers as a nursery crop for regenerating native bush. Gorse protects self-sown and bird-sown native seedlings until they push through and collapse the gorse canopy, thus enabling rapid restoration of revegetated areas. Also, it is noted that some unwanted plants e.g. broom and tree lupin provide a source of food for iconic manu such as tūī (parson bird) and kererū (NZ pigeon).
- 6.56. See section 4 in Appendix A of the Māori Impact Assessment for more information regarding ngā otaota.

### **Impact on Ngā manu, me ngā ngārara (Birds and reptiles)**

- 6.57. Method 240 SL Herbicide is not likely to have a significant impact on culturally important species of manu (birds) or ngārara (reptiles). See section 5 in Appendix A of the Māori Impact Assessment for more information regarding manu and ngārara.

### Impact on Te Aitanga Pepeke (Arthropods)

- 6.58. There is insufficient information to assess the extent to which Method 240 SL Herbicide may potentially harm culturally significant species of pepeke (arthropods) including ngā mū haenga (pollinator insects) such as ngaro huruhuru (native bees), ngaro tamumu (hoverflies), and pepe (butterflies and moths). The latter group include pepe puri (ringlet butterflies) and pepe para riki (copper butterflies), as well as the non-pollinating tāwhana (looper moths).
- 6.59. In addition to pī honi (honeybees) and pī rorohū (bumble bees), which are economically important to Māori producers in terms of crop pollination and honey production, other beneficial pepeke potentially affected by Method 240 SL Herbicide include native species of ngaro wīwī (hunting wasps), ngaro whiore (ichneumonid wasps), and various pūngāwerewere (spiders). To these may be added various prey species of valued manu (birds) and moko (lizards) such as ngāi kihikihi / whitiwhiti (long legged and jumping insects i.e. orthoptera), pāpapa (beetles), and ngarongaro (flies).
- 6.60. There is a considerable body of lore relating to these pepeke. Māori would be keen to protect all culturally or economically significant pepeke from the effects of Method 240 SL Herbicide. See section 6 in Appendix A of the Māori Impact Assessment for more information regarding Te Aitanga Pepeke.

### Impact on Ngā wai koiora (Aquatic habitats)

- 6.61. Method 240 SL Herbicide is not likely to have a significant impact on ngā wai koiora (aquatic habitats) including taonga species of ika (fish), tuna (freshwater eels), koura/kēwai (freshwater crayfish), kākahi (freshwater mussels), and kowhitiwhiti (watercress).
- 6.62. However, some Māori may have a level of discomfort about Method 240 SL Herbicide potentially entering surface water or groundwater that is used for domestic or stock water supply systems, irrespective of whether or not the concentrations of Method 240 SL Herbicide are regarded as being below levels of concern for human health in a western epidemiological sense.
- 6.63. In view of the biocidal, persistence, and leaching attributes of Method 240 SL Herbicide, there is a possibility that run-off from treated areas could harm culturally significant otaota in the surrounding environment. Irrigation using water contaminated with this substance could adversely affect crops and pasture, as well as pose harm to plants where water tables are shallow as a result of uptake through root systems.
- 6.64. The controls proposed to be assigned to Method 240 SL Herbicide should be sufficient for managing potential adverse effects on these receptors. See section 7 in Appendix A of the Māori Impact Assessment for more information regarding ngā wai koiora.

### Impact on Taha hauora (Human health and well-being)

6.65. Method 240 SL Herbicide it is not likely to have a significant impact on taha hauora (human health and well-being) even if personal protective equipment (PPE) is not used. Therefore, it is anticipated that all four dimensions of taha hauora would be protected for users, these being: Taha tinana (physical well-being); taha wairua (spiritual well-being); taha hinengaro (mental and emotional well-being); and taha whanaunga (family and social well-being). The controls proposed to be assigned to Method 240 SL Herbicide will help to protect taha hauora. See section 8 in Appendix A of the Māori Impact Assessment for more information regarding taha hauora.

### Impact on kaitiakitanga and manaakitanga (environmental guardianship and due care)

- 6.66. Method 240 SL Herbicide is likely to have a positive impact on the ability of Māori to exercise kaitiakitanga and manaakitanga (environmental guardianship and due care). This is because Method 240 SL Herbicide can help to restore culturally significant landscapes, ecosystems, taonga species, and land productivity – which are outcomes that mana whenua and kaitiaki can endorse knowing that Method 240 SL Herbicide is a relatively ‘green’ herbicide.
- 6.67. See section 9 in Appendix A of the Māori Impact Assessment for more information regarding kaitiakitanga and manaakitanga, as well as section 2 (Ngā taonga tuku iho / Cultural legacies) for further context.

## 7. Assessment of risks to society, the community, and the market economy

- 7.1. No risks to society, communities or the market economy from the approval of Method 240 SL Herbicide have been identified.

## 8. New Zealand’s international obligations

- 8.1. No international obligations that may be impacted by the approval of Method 240 SL Herbicide have been identified.

## 9. Assessment of benefits

### Control of wilding conifers

- 9.1. Wilding conifer control in New Zealand is one part of the long-term biosecurity management programmes, and according to MPI<sup>3</sup>, it is estimated that 20% of New Zealand will be covered

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<sup>3</sup> Wilding conifer control in New Zealand – MPI

<https://www.mpi.govt.nz/biosecurity/long-term-biosecurity-management-programmes/wilding-conifers/>

in unwanted wilding conifers within 20 years if their spread is not stopped. Wilding conifers already cover more than 1.8 million hectares of New Zealand. Despite control efforts, they have been spreading at about 5% a year. That is about 90,000 more hectares a year. The introduction of Method 240 SL Herbicide would constitute another tool to help meeting this objective.

9.2. As per DOC<sup>4</sup> information, wilding conifers:

- reduce the numbers of plants and animals that are only found in New Zealand
- impact on farming by significantly reducing the available grazing land
- create a fire risk as they are dense and impenetrable with no road access
- limit recreation and tourism related activities
- can cause acidification of soils which leads to the depletion of some minerals such as calcium
- use more water, so runoff is decreased which affects streams in the catchment
- release large volumes of water vapour to the atmosphere through their leaves
- provide habitat for exotic pest plants, animals and diseases.

9.3. It is considered that the level of benefit is major to massive as it would allow long term widespread benefits to key New Zealand ecosystems and landscape.

## Method 240 SL Herbicide's place in the chemical management of wilding conifers control

9.4. In places where there is a dense infestation of wilding conifers, a common chemical treatment is to spray the trees by air using a combination of several active ingredients, such as triclopyr, dicamba, aminopyralid and picloram together with ammonium sulphate, spray oil and surfactant (known as "TDPA"). More details on these alternative treatments are included in Appendix A.

9.5. These herbicides are used at higher application rates than the proposed dose rate for Method 240 SL Herbicide.

9.6. These herbicides have a less favourable classification than Method 240 SL for both human health and environmental.

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<sup>4</sup> Wilding conifers – DOC

<https://www.doc.govt.nz/nature/pests-and-threats/weeds/common-weeds/wilding-conifers/>

- 9.7. The substitution of the use of those herbicides by Method 240 SL Herbicide is considered a potential high benefit.
- 9.8. The likelihood of that benefit being realised will depend on the effective substitution of the use of the currently used herbicides by Method 240 SL Herbicide.
- 9.9. Overall, this benefit is considered to be moderate, as it depends on the effective substitution of the currently used herbicides by Method 240 SL Herbicide.

### Other problematic woody weeds

- 9.10. Method 240 SL herbicide is considered efficacious on a number of hard-to-control woody weed species such as gorse (*Ulex europaeus*), broom (*Cytisus scoparius*) and others. These are often part of regional pest management plans.
- 9.11. The ability to control such problematic weeds is considered a major benefit as it would bring long term benefits to localised ecosystems.

### Ngā hua (Benefits - Māori Impact Assessment)

- 9.12. Method 240 SL Herbicide provides a less harmful alternative to other substances, including 'tank mixes', that are used for controlling wilding conifers, gorse, broom, blackberry, thistles, other woody plants, broadleaf weeds and vines. Using Method 240 SL Herbicide to control these pest plants will produce environmental, social, economic and operational benefits for those involved in conservation and land-based industries, many of whom are Māori.
- 9.13. It is noted the submission from Ngāi Tahu, in whose rohe wilding conifer invasion is a serious environmental issue, supports this application with conditions. Also, Ngāi Tahu has expressed concern in recent years about the use of tank mixes for these purposes, which availability of Method 240 SL Herbicide may help to resolve.
- 9.14. Appendix A of the EPA staff report for this application shows a comparison of hazard classifications between Method 240 SL Herbicide and currently approved treatments for controlling wilding conifers. Method 240 SL Herbicide has a superior hazard classification profile to the other substances listed in Appendix A.
- 9.15. The benefits of using Method 240 SL Herbicide on wilding conifers could potentially be seen at the landscape scale in Te Tai Tokerau (Northland), Te Kāhui Maunga / Waiariki (Central North Island / Volcanic Plateau), Te Tau Ihu (Nelson – Marlborough), Waitaha (Canterbury), Ōtākou (Otago) and Murihiku (Southland).
- 9.16. It is noted that aerial applications of Method 240 SL Herbicide will enable pest plants to be eradicated in difficult-to-access places where alternative ground-based control methods are not practical. This would be supported by many Māori, especially those who are concerned that the number of exotic plant species in Aotearoa now outnumber indigenous ones.

- 9.17. Aerial applications of Method 240 SL Herbicide would enable eradication of wilding conifers where severe incursions have established dense cover (i.e. self-sown forest) over extensive areas of land.
- 9.18. Retaining as much of the natural character of these landscapes and their ecosystems as possible is important for ecological sustainability and tourism, which Māori are heavily invested in.
- 9.19. In addition to altering landscapes and ecosystems, wilding conifers and other invasive plants such as gorse and broom pose a fire hazard and can have a negative economic impact by reducing grazing area on farmland.

## 10. The effects of the substance being unavailable

- 10.1. Wilding conifers is a significant issue in New Zealand. Various herbicides are currently in use to control wilding pines and other problematic woody weeds (gorse, blackberry). It is estimated that Method 240 SL Herbicide being unavailable, various other herbicides and mixture of existing herbicides could be used (see Appendix A).

## 11. Uncertainties

- 11.1. There are potential remaining uncertainties associated with Method 240 SL Herbicide when used with wide-dispersive application methods. Those are:
  - Risks to non-target plants
  - Risk of leaching to groundwater
  - Chronic toxicity to adult honeybees
  - Toxicity to honeybee larvae
  - Toxicity to non-target arthropods (parasitic wasp *Aphidius rhopalosiphi* and predatory mite *Typhlodromus pyri*).

## 12. Controls

- 12.1. The hazard classifications of Method 240 SL Herbicide determine a set of prescribed controls specified by the EPA Notices.
- 12.2. The prescribed controls set the baseline for how the substance should be managed and include specifications on how the substance is to be packaged, labelled, stored, disposed of, transported, handled, and used. The prescribed controls also set information requirements (eg Safety Data Sheets), signage and emergency management.

- 12.3. The Hazardous Substances Labelling, Safety Data Sheet (SDS), Packaging, Disposal and Hazardous Property Controls (HPC) Notices Part 1, Part 3, Part 4A, Part 4B and Part 4C 2017 apply to Method 240 SL Herbicide.

### Exposure limits

- 12.4. The EPA has not set a Tolerable Exposure Limit (TEL) for Method 240 SL Herbicide, or any element or compound in the substance. This is because it is not considered that exposure is likely to result in an appreciable toxic effect based on the quantitative risk assessment.
- 12.5. No Environmental Exposure Limit (EEL) values are proposed for aminocyclopyrachlor at this time. This is because it is not considered that, with controls in place, environmental exposure is likely to result in an appreciable ecotoxic effect based on the quantitative risk assessment.

### Addition and variation of controls to manage risk

- 12.6. The following additional and varied controls are proposed under section 77A of the Act to manage the risks of use of Method 240 SL Herbicide.

### Maximum application rate

- 12.7. Significant environmental risks may occur from the use of Method 240 SL Herbicide, due to the hazards posed by aminocyclopyrachlor. Therefore, it is considered necessary to set a maximum application rate, number of applications and frequency under clause 50 of the HPC Notice.
- 12.8. The maximum application rate of this substance is 1.3 L/ha (equivalent to 312 g of aminocyclopyrachlor/ha) for broadcast applications, with one application per year.

### Application method

- 12.9. The environmental risk assessment indicates that restrictions on the application method of this substance are necessary to mitigate the risk of death or adverse effects that it could present to organisms in the environment. In particular, the restriction of the spray nozzle to be set to a minimum coarse droplet spray, as well as favourable wind conditions, are key factors to reduce spray drift.

### Use restrictions

- 12.10. The risk assessment indicates that restrictions on the application sites are necessary to mitigate the risk of death or adverse effects that it could present to organisms in the environment. In particular, the restriction to limit the application of Method 240 SL Herbicide to unimproved pasture, regional parks or land administered and managed by DOC only, is key to mitigate risks to non-target organisms.

### **Additional label statements**

- 12.11. Additional label statements are recommended to prevent or minimise off-target exposure (see appendix B for control wordings).
- 12.12. Additional statements are recommended to mitigate risks that may arise post application from treated material.

### **Buffer zones**

- 12.13. Buffer zone distances are recommended to mitigate risks to non-target vegetation (see Appendix B for control wording).

### **Additional information requirements**

- 12.14. An additional control is recommended to require additional information be provided regarding:
- A pre-application assessment of the treatment area for broadcast applications
  - Information about the application restrictions, contact information and responsible handling information

## **13. Overall evaluation and recommendation**

- 13.1. The proposed use Method 240 SL Herbicide results in negligible risks to human health and the environment, except for non-target plants and potentially to non-target-arthropods (given the data gaps) for which some level of risk is likely to remain for wide dispersive application.
- 13.2. The potential benefits of using Method 240 SL Herbicide have been assessed as significant.
- 13.3. It is therefore recommended that the Committee approves the application to import or manufacture Method 240 SL Herbicide for release.

## Appendix A: Comparison between currently approved treatments for the control of wilding conifers and Method 240 SL Herbicide

| Product                               | Approvals<br>(HSNO and<br>ACVM) | Active ingredient  | Maximum per ha rate |   | Classifications  |
|---------------------------------------|---------------------------------|--|---------------------|---|--|
|                                       |                                 |  | Product             | Active ingredient   |  |
| Method 240 SL<br>Herbicide            |                                 | Aminocyclopyrachlor<br>240 g/L                                 | 1.3 L/ha            | 0.312 kg/ha   | Hazardous to soil organisms  |
| Tordon<br>Brushkiller XT<br>Herbicide | HSR007630<br>P007545            | Triclopyr 300 g/L+<br>Picloram 100 g/L +<br>Aminopyralid 8 g/L | 12 L/ha             | Triclopyr 3.6 kg/ha<br>Picloram 1.2 kg/ha<br>Aminopyralid 0.096 kg/ha | Flammable liquid Category 4,<br>Acute oral toxicity Category 4,<br>Eye irritation Category 2,<br>Skin sensitisation Category 1,<br>Specific target organ toxicity (repeated exposure) Category 2,<br>Hazardous to soil organisms<br>Hazardous to terrestrial vertebrates,<br>Hazardous to the aquatic environment acute Category 1,<br>Hazardous to the aquatic environment chronic Category 1 |
| Grazon<br>Herbicide                   | HSR000829<br>P003868            | Triclopyr 600 g/L  | 10 L/ha             | 6 kg/ha   | Acute oral toxicity Category 4,<br>Eye irritation Category 2,<br>Skin sensitisation Category 1,  |

| Product          | Approvals (HSNO and ACVM) | Active ingredient             | Maximum per ha rate  |                   | Classifications   |
|------------------|---------------------------|-------------------------------|--|-------------------|---|
|                  |                           |                               | Product  | Active ingredient |   |
|                  |                           |                               |  |                   | Specific target organ toxicity (repeated exposure) Category 2,<br>Hazardous to soil organisms,<br>Hazardous to terrestrial vertebrates,<br>Hazardous to the aquatic environment acute Category 1,<br>Hazardous to the aquatic environment chronic Category 1                        |
| Answer Herbicide | HSR000238<br>P005207      | Metsulfuron-methyl<br>200 g/L | 1.5 kg/ha  | 0.3 kg/ha         | Eye irritation Category 2,<br>Hazardous to soil organisms,<br>Hazardous to terrestrial vertebrates, Hazardous to the aquatic environment acute Category 1,<br>Hazardous to the aquatic environment chronic Category 1   |
| X-tree Basal     | HSR101226<br>P009369      | Triclopyr 120 g/L             | N/A (ready to use formulation for circumference treatment of basal bark) | N/A               | Eye irritation Category 2,<br>Skin sensitisation Category 1,<br>Specific target organ toxicity (repeated exposure) Category 2,<br>Hazardous to soil organisms,<br>Hazardous to the aquatic environment acute Category 1,<br>Hazardous to the aquatic environment chronic Category 1 |

| Product             | Approvals<br>(HSNO and<br>ACVM) | Active ingredient  | Maximum per ha rate |  | Classifications   |
|---------------------|---------------------------------|--|---------------------|--|---|
|                     |                                 |  | Product             | Active ingredient  |   |
| Associate 600<br>WG | HSR000242<br>P005957            | Metsulfuron-methyl<br>600 g/kg   | 0.5 kg/ha           | 0.3 kg/ha  | Eye irritation Category 2,<br>Hazardous to soil organisms,<br>Hazardous to the aquatic environment acute Category 1,<br>Hazardous to the aquatic environment chronic Category 1 |
| TDPA                |                                 | Mixture of 20 L<br>Grazon + 20 L Tordon<br>Brushkiller XT + 10L<br>Dicamba +4 kg<br>ammonium sulphate<br>+ 20 L Kwickin oil +<br>water | 400 L/ha            | 18 kg/ha triclopyr<br>5 kg/ha dicamba<br>2 kg/ha picloram<br>0.28 kg/ha aminopyralid |   |

## Appendix B: Proposed controls for Method 240 SL Herbicide

### Hazardous substances and new organisms (HSNO) default controls

| Control code | Regulation                                      | Control description   |
|--------------|---|---|
| LAB          | Labelling Notice 2017                           | <a href="#">Requirements for labelling of hazardous substances</a>  |
| PKG          | Packaging Notice 2017                           | <a href="#">Requirements for packaging of hazardous substances</a>  |
| SDS          | Safety Data Sheet Notice 2017                   | <a href="#">Requirements for safety data sheets for hazardous substances</a>                                |
| DIS          | Disposal Notice 2017                            | <a href="#">Requirements for disposal of hazardous substances</a>   |
| HPC1         | Hazardous Property Controls Notice 2017 Part 1  | <a href="#">Hazardous Property Controls preliminary provisions</a>  |
| HPC3         | Hazardous Property Controls Notice 2017 Part 3  | <a href="#">Hazardous substances in a place other than a workplace</a>                                      |
| HPC4A        | Hazardous Property Controls Notice 2017 Part 4A | <a href="#">Site and storage controls for substances that are hazardous to the environment</a>              |
| HPC4B        | Hazardous Property Controls Notice 2017 Part 4B | <a href="#">Use of substances that are hazardous to the environment</a>                                     |
| HPC4C        | Hazardous Property Controls Notice 2017 Part 4C | <a href="#">Qualifications required for application of substances that are hazardous to the environment</a> |

## HSNO Additional Controls and Modifications to Controls

| Code                            | HSNO Act   | Control  |
|---------------------------------|--|--|
| Application rate                | Section 77<br>variation to HPC<br>Notice clause 50 | The maximum application rate of this substance is 1.3 L /ha (equivalent to 312 g of aminocyclopyrachlor/ha) for broadcast applications, with one application per year  |
| Use restrictions                | Section 77A<br>Additional control                  | <p>(1) No person can apply the substance except on unimproved pasture, regional parks, or conservation land; and</p> <p>(2) The person in charge of the application must ensure that the application is carried out in accordance with the requirements of (1).</p> <p>(3) For avoidance of doubt, in (1)—</p> <p>(a) Unimproved pasture means areas which are extensively grazed and receive minimum management inputs.</p> <p>(b) Conservation land means land defined for conservation purposes and administered and managed by the Department of Conservation (DOC).</p> <p>(c) Regional parks</p> |
| Application method restrictions | Section 77A<br>Additional control                  | <p>A person applying this substance must ensure that the substance spray is delivered as a coarse quality spray for ground-based application and coarse to very coarse droplets for aerial application<sup>5</sup> as classified by the American Society of Agricultural &amp; Biological Engineers (ASABE) droplet size classification scheme (American National Standard ANSI/ASABE S572.1, March 2009).</p> <p>Explanatory note: for both ground-based and aerial application, droplets larger than those specified may be used</p>   |

<sup>5</sup> includes but not restricted to AFSA and ABBA

| Code  | HSNO Act                                 | Control  |
|-------|--|--|
| Label | Section 77 variation to Labelling Notice | <p><b>Pollinator's protection:</b></p> <ul style="list-style-type: none"> <li>• “<b>DO NOT</b> apply the substance to plants if – <ul style="list-style-type: none"> <li>(a) Bees are foraging; or</li> <li>(b) The plants are in flower or part flower, and are likely to be visited by non-target invertebrate pollinators (including bees)”</li> </ul> </li> </ul>  |
| Label | Section 77 variation to Labelling Notice | <p><b>Spray drift prevention:</b></p> <p>The substance label must include the following statement, or words to the same effect:</p> <ul style="list-style-type: none"> <li>• <b>DO NOT</b> apply when wind speeds are less than 3 km/hr or more than 20 km/hr as measured at the application site</li> <li>• <b>DO NOT</b> apply during a temperature inversion</li> <li>• Apply using accurately calibrated and maintained equipment in accordance with the New Zealand Standard for the Management of Agrichemicals (NZS8409).</li> </ul>  |
| Label | Section 77 variation to Labelling Notice | <p><b>Runoff prevention</b></p> <p>The substance label must include the following statement, or words to the same effect:</p> <ul style="list-style-type: none"> <li>• This product may impact surface water quality due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow groundwater. This product is classified as having a high potential for reaching surface water via runoff for several months after application. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours</li> <li>• Leave treated soil undisturbed to reduce the potential for Method 240 SL Herbicide movement by soil erosion due to wind or water</li> </ul> |

| Code  | HSNO Act                                       | Control   |
|-------|--|---|
| Label | Section 77<br>variation to<br>Labelling Notice | <p data-bbox="586 316 882 339"><b>Protection of waterbodies</b></p> <p data-bbox="586 376 1503 400">The substance label must include the following statement, or words to the same effect:</p> <p data-bbox="586 437 2040 509">Aminocyclopyrachlor has properties and characteristics associated with chemicals detected in groundwater. This chemical may leach into groundwater if used in areas where soils are permeable, particularly where the water table is shallow</p> <ul data-bbox="636 545 2069 863" style="list-style-type: none"> <li data-bbox="636 545 1234 569">• <b>DO NOT</b> apply through any type of irrigation system</li> <li data-bbox="636 606 1211 630">• <b>DO NOT</b> contaminate water intended for irrigation</li> <li data-bbox="636 667 2069 738">• <b>DO NOT</b> treat or allow spray drift or run-off to fall onto banks or bottoms of irrigation ditches, either dry or containing water, or other channels that carry water that may be used for irrigation purposes</li> <li data-bbox="636 775 1010 799">• <b>DO NOT</b> apply on bare ground</li> <li data-bbox="636 836 1711 860">• <b>Only apply</b> during active plant growth period to maximise potential for dissipation by plant uptake</li> </ul> |

| Code  | HSNO Act                                 | Control  |
|-------|--|--|
| Label | Section 77 variation to Labelling Notice | <p><b>Non-target plant protection:</b></p> <p>The substance label must include the following statement, or words to the same effect:</p> <ul style="list-style-type: none"> <li>• <b>DO NOT</b> apply this product to areas where the roots of desirable trees and/or shrubs may extend unless injury or loss can be tolerated. A treatment set-back distance should be 2.5 times the canopy drip-line width of adjacent susceptible non-target crops or desirable vegetation. For example, if a nearby desirable non-target tree has a canopy drip-line width of 3 metres, the set-back from the tree should be 7.5 metres</li> <li>• <b>DO NOT</b> apply if site-specific characteristics and conditions exist that could contribute to movement and unintended root zone exposure to susceptible non-target crops or desirable vegetation, unless injury or loss can be tolerated</li> <li>• <b>DO NOT</b> make applications or otherwise permit this product or sprays containing this product to come into contact with any susceptible non-target crops or desirable vegetation</li> <li>• <b>DO NOT</b> apply when powdery dry soil or sandy soils are known to be prevalent in the area to be treated. Treatment of powdery dry soil and light sandy soils, when there is little likelihood of rainfall soon after treatment, may result in off-target movement and possible damage to susceptible non-target crops or desirable vegetation when soil particles are moved by wind or water. Injury to susceptible non-target crops or desirable vegetation may result if treated soil is washed, blown, or moved onto land used to produce crops or land containing susceptible non-target crops or desirable vegetation.</li> <li>• Certain species, in particular, may be susceptible to damage or plant death from low doses of Method 240 SL Herbicide including, but not limited to, Beech species, Conifers (Douglas fir, Pinus species, Kauri), Eucalypt species, Legumes (clovers, lucerne, lupins), Manuka, Matagouri, Ornamental shrubs, Poplar species, Pōhutukawa, Silver birch, Totara and Willow species.</li> <li>• For broadcast aerial application<sup>6</sup>, it is recommended to only treat stands with over 80% canopy cover.</li> </ul> |

| Code         | HSNO Act  | Control  |
|--------------|---|--|
| Buffer zones | Variation to Hazardous Property Controls Notice Part 4B | <p>The downwind buffer zone requirements for this substance, as specified in accordance with clause 51 of the Hazardous Property Controls Notice, are as follows:</p> <p>(1) The person in charge of the application of this substance and any person applying this substance, must ensure that the substance is not applied within the respective specified distance downwind of a sensitive area, where the sensitive receptor is susceptible non-target crops or desirable vegetation</p> <p>(a) Broadcast ground-based application: minimum 10 meters</p> <p>(b) Broadcast aerial application<sup>7</sup>: minimum 100 metres</p> <p><i>Explanatory note: the buffer zone needs to be calculated from the edge of the set back distance to the edge of the application equipment</i></p> |

<sup>6</sup> includes but not restricted to AFSA broadcast

<sup>7</sup> includes but not restricted to AFSA broadcast

| Code                       | HSNO Act                          | Control   |
|----------------------------|-----------------------------------|---|
| Pre-application assessment | Section 77A<br>Additional control | <p data-bbox="589 304 1456 331"><b>Pre-application assessment of the treatment area for broadcast applications</b></p> <p data-bbox="589 360 2094 432">Before application is undertaken, a pre-application assessment of the intended application area needs to be conducted in order to map out no-spray zones in respect of the following sensitive non-target areas:</p> <ul data-bbox="651 464 1355 667" style="list-style-type: none"> <li data-bbox="651 464 896 491">• Mahinga kai sites<sup>8</sup></li> <li data-bbox="651 523 1355 608">• Sensitive susceptible non-target crops or desirable vegetation <ul style="list-style-type: none"> <li data-bbox="741 580 1182 608">▪ Determination of a set back distance</li> </ul> </li> <li data-bbox="651 639 801 667">• Beehives</li> </ul> <p data-bbox="589 699 2123 770">A record of the pre-application assessment must be kept for inspection purposes. The record must contain sufficient information to allow for third party verification of the pre-application assessment.</p> |

<sup>8</sup> Mahinga kai generally relates to customary food gathering areas for a whānau, hapū, iwi. There are often specific tikanga or cultural practices associated with the harvesting of resources from these areas, these will usually be based upon principles of kaitiakitanga and manaakitanga. In turn, these tikanga can influence the types of activities that would be permitted or appropriate around such areas, so one should always seek greater awareness and understanding. Mana whenua or people of the local area will be best suited to providing information and guidance on mahinga kai locations within a particular rohe or region. Therefore, anyone wanting to learn more about mahinga kai for an area could start by seeking advice from the local hapū or iwi group.

Information -  
additional  
information  
requirements

Section 77A  
Additional control

### **Responsible Handling Information package**

- (1) An importer or manufacturer of the substance must obtain or prepare Responsible Handling Information;
- (2) For the purposes of (1), Responsible Handling Information means a package of information that—
  - (a) includes details on responsible handling of the substance;
  - (b) is sufficiently comprehensive to allow any person handling the substance to be aware of their HSNO obligations when handling the substance;
  - (c) contains information on responsible handling of the substance throughout its entire lifecycle, including (but not limited to) mandatory content topics detailed in CONTENT REQUIREMENTS OF RESPONSIBLE HANDLING INFORMATION; and
  - (d) is consistent with compliant use under the requirements of the substance approval.
- (3) Any person importing or manufacturing the substance must ensure that the information required by (2) is —
  - (a) readily available and freely accessible to users, to the extent that is reasonably practicable; and
  - (b) in English and be able to be readily comprehended.

### **CONTENT REQUIREMENTS OF RESPONSIBLE HANDLING INFORMATION**

For the purposes of (2)(c), mandatory content requirements are:

#### **Topic 1 – Application restrictions**

Any person importing or manufacturing the substance must ensure that the information required to be provided includes details of application restrictions, and guidance on how to comply with those requirements, including (but not limited to):

- (1) Application rate restrictions
- (2) Application equipment restrictions

| Code | HSNO Act | Control   |
|------|----------|---|
|      |          | <p>(3) Droplet size requirements</p> <p>(4) Use restrictions (ie land administered and managed by DOC, regional parks or unimproved pasture only)</p> <p><b>Topic 2 – Contact information</b></p> <p>Any person importing or manufacturing the substance must ensure that the information required to be provided includes contact information for the importer or manufacturer for the purpose of responding to queries relating to the aminocyclopyrachlor-containing substance</p> <p><b>Topic 3 – Responsible handling Information</b></p> <p>Any person importing or manufacturing the substance must ensure that the information required to be provided includes:</p> <p>(1) Information on the environmental hazards and key exposure risks associated with the aminocyclopyrachlor containing substance and its intended uses; this should include the following</p> <ul style="list-style-type: none"> <li>a. information related to the protection of non-target plants.</li> <li>b. information related to the protection of water bodies (including groundwater).</li> <li>c. information related to the limitation of off-target movement and the importance of environmental pathways and associated risks factors including spray drift (wind), runoff (slopes), drainage, leaching.</li> </ul> <p>(2) details of how users need to conduct a pre-application treatment area assessment</p> |

| Code  | HSNO Act                                       | Control   |
|-------|--|---|
| Label | Section 77<br>variation to<br>Labelling Notice | <p data-bbox="589 316 958 339"><b>Post-application considerations:</b></p> <p data-bbox="589 376 1514 400">The substance label must include the following statement, or words to the same effect:</p> <ul data-bbox="611 437 2107 616" style="list-style-type: none"><li data-bbox="611 437 1442 461">• <b>DO NOT</b> use plant material treated with this product for mulch or compost</li><li data-bbox="611 497 2107 616">• <b>DO NOT</b> plant the treated sites for at least one year after the substance application if non-crop sites treated with the substance are to be converted to a food, feed, or fiber agricultural crop, or to a horticultural crop. A field bioassay must then be completed before planting the desired crop</li></ul> |

## Appendix C: List of references

EPA (2021). Science Memorandum - Method 240 SL Herbicide: 258.

National Wilding Conifer Control Programme (2019a). Aerial Basal Bark Application (ABBA): 20.

National Wilding Conifer Control Programme (2019b). Aerial Foliar Spray Application (AFSA): 28.

National Wilding Conifer Control Programme (2019c). Ground-Based Herbicide Injection - 'Drill and Fill': 7.