



Rights-of-Way Integrated Pest Management Plan

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Nelson Hydro

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Table of Abbreviations

ALR	Agricultural Land Reserve
CKISS	Central Kootenay Invasive Species Society
EDRR	Early Detection Rapid Response
IPM	Integrated pest management
IPMA	Integrated Pest Management Act
IPMR	Integrated Pest Management Regulations
KNC	Ktunaxa Nation Council
MOE	Ministry of Environment
MOTT	Ministry of Transportation and Transit
NIT	Notice of Intent to Treat
NTZ	No treatment zone
OCP	Official Community Plan
PCP	Pesticide control Product
PFZ	Pesticide free zones
IPMP	Pest Management Plan
PMRA	Pest Management Regulatory Agency
QP	Qualified Professional
RAPR	Riparian Areas Protection Regulation
ROW	Rights-of-way
SAR	Species at Risk
SDS	Safety Data Sheets
SRW	Statutory Right-of-Way
WHF	Wildlife Habitat Feature
WHMIS	Workplace Hazardous Materials Information System

Revision History

Revision #	Date	Status	Revision Description	Author
1.0	October 1, 2025	Draft	Initial Document Creation – Nupqu Ltd Partnership	JH and RP

1. Introduction

This document is an Integrated Pest Management Plan (IPMP) for the maintenance of rights-of-way (ROW). It has been prepared per Section 58: Pest Management Plans [BC Reg235/2015, s. 29; July 1, 2026.] and Section 5: Pesticide Use Notice Requirements [BC 235/2015, s.20; 19/2022, s.1.; February 7, 2022] of the Integrated Pest Management Regulation (BC) (IPMR). The ROW IPMP aligns with the Nelson Hydro Five-Year Vegetation Management Plan and other Community Management Plans and Best Practices.

1.1. Nelson Hydro

Nelson Hydro is wholly owned by the City of Nelson. Nelson Hydro provides electricity and related services to customers in the City of Nelson and surrounding areas, including Blewett, Taghum, the North Shore, Harrop, Procter, Balfour and Queen's Bay. Nelson Hydro provides generation, transmission and distribution power lines, residential, and business services to customers within the City of Nelson and to the above surrounding communities' Integrated Pest Management Plans.

Under the British Columbia *Integrated Pest Management Act (IPMA)*, Section 58, a Pest Management Plan is defined as a plan that describes:

- Prescribed for the purpose of Section 7 (1) of the Act as using either restricted, commercial or domestic pesticides,
- A program for managing pest populations or reducing damage caused by pests based on integrated pest management (IPM); and,
- The methods of handling, preparing, mixing, applying and otherwise using pesticides within the program.

Within the *IPMA*, the term pesticide is defined as a microorganism, chemical or other material used to prevent, destroy, repel, or mitigate a pest. A pest is referred to under the Act as an injurious, noxious or troublesome living organism (*IPMA*, Part 1, See definitions).

The British Columbia *IPMA* and the Integrated Pest Management Regulations (IPMR) require that vegetation management on all ROW, including transmission corridors, distribution networks and access roads, be approved under a single, comprehensive IPMP. All ROW areas may be used to house utility infrastructure such as poles, power lines and facilities such as substations, switching stations, generation stations, pole yards, and buildings and structures.

Compliance with environmental legislation is a top priority for Nelson Hydro; therefore, existing IPMPs have been revised in 2025 per the current IPMR (*circa June 3, 2025*).

The IPMP ensures:

- Compliance with all applicable provisions of the IPMA and IPMR, and other applicable Federal, Provincial and regional laws and regulations;
- The responsible use of pesticides,
- The incorporation and use of IPM, and,
- The Nelson Hydro vegetation management program will be publicly available to the City of Nelson and surrounding communities for Integrated Pest Management activities occurring on Nelson Hydro's ROW.

1.2. Geographic Boundaries of the Area to Which This Plan Applies

[IPMR Section 58(1)(a)]

This IPMP addresses the Nelson Hydro vegetation management program along (ROW), which includes transmission corridors, distribution networks and their access roads within the City of Nelson and surrounding areas, including Blewett, Taghum, the North Shore, Harrop, Procter, Balfour and Queen's Bay.

A Nelson territory map describing the geographic boundaries of the area to which this IPMP will apply is shown in Appendix A.

1.3. Person Responsible for Managing Pest

[IPMR Section 58(1)(b)(c)]

Within Nelson Hydro, the person responsible for vegetation management on rights-of-way and the principal contact for information relating to this IPMP will be Neal Dermody, Operations and Line Manager, Nelson Hydro. Mr. Dermody can be contacted at (250) 352-8213, or at: NDermody@nelson.ca

1.4. Role and Term of This IPMP

The IPMP permits Nelson Hydro to utilize pesticides, in certain situations, when carrying out vegetation management on ROW throughout their service area. The IPMP will be pertinent for a five-year period from the date that Confirmation of a Pesticide Use Notice has been obtained.

The use of this IPMP will ensure:

- Legal accountability with the provisions of the IPMA and IPMR, as well as all applicable federal, provincial and regional laws and regulations;
- General alignment with the City of Nelson's Management Plans and Best Practices and other area specific guidelines listed in Table 3-1;
- The responsible use of pesticides for vegetation management;
- The incorporation and use of IPM principles;
- Public awareness of, and input into, the vegetation management program; and,
- The practical use of IPM considers environmentally sensitive areas and land uses.

2. Objectives of ROW Vegetation Management

According to BC regulations, Nelson Hydro needs to control noxious weeds and invasive plants and maintain awareness of new invasives and plant priorities specific to the invasive plant management area (CKISS, Table 3-1). Also of importance is tall-growing vegetation in ROW because of a zero-tolerance policy for outages caused by trees growing into transmission and distribution lines. Nelson Hydro's policy is to effectively and safely manage the risk of such outages. Nelson Hydro also works to minimize the risk of outages caused by hazard and danger trees (problem vegetation) falling onto the lines, and to comply with provisions of the BC *Weed Control Act* that require occupiers of land to control noxious weeds.

The specific goals of vegetation management on the Nelson Hydro ROW are to:

- Minimize public and worker safety hazards;
- Reduce the number of outages from problem vegetation falling onto power lines;
- Reduce the risk of fires caused by trees contacting lines;
- Allow access and lines of sight for maintenance; and,
- Comply with provisions of the BC Weed Control Act that require occupiers of land to identify and control noxious weeds.

The program further strives to:

- Encourage a stable, low-growing plant community;
- Respect agreements with the public, landowners, other stakeholders, and First Nations' traditional rights;
- Comply with all government regulations and corporate policies;
- To comply with provisions of the BC Wildfire Regulation for maintaining rights-of-way located within 300 metres of forested land or grassland areas in a manner that prevents any fire from spreading;
- Selectively control only undesirable (target) species; and,
- Enhance biodiversity.

3. Right-of-Way Vegetation Management Using Integrated Pest Management Principles

[IPMA Part 1 Interpretation Definitions]

To ensure effective vegetation management, Nelson Hydro has adopted the principles of IPM into its company programming.

IPM means a process for managing pest populations that includes the following activities:

- **Planning** and managing ecosystems to prevent organisms from becoming pests (i.e. Prevention);
- **Identifying** pest problems and potential pest problems;
- **Monitoring** populations of pests and beneficial organisms; damage caused by pests and environmental conditions;
- **Using injury** (treatment) thresholds in making treatment decisions;
- **Suppressing** pest populations to tolerable levels using strategies based on consideration of biological, physical, cultural, mechanical, behavioural and chemical controls in appropriate combinations and environmental and human health protection (i.e. Pest Treatment Options and Treatment Method Selection); and,
- **Evaluating** the effectiveness of Integrated Pest Management strategies.

Each of the above IPM elements is integral to the Nelson Hydro vegetation management program on rights-of-way.

3.1. Prevention (Planning)

[IPMR Section 58(2)(a)]

Preventative measures, such as regular vegetation management cycles, problem vegetation identification, and shared planning, are an integral part of an IPM program and aim to stop the initial growth and spread of unwanted vegetation.

Under its prevention program, Nelson Hydro conducts regular patrols/inspections on all its transmission rights-of-way and distribution corridors. Information regarding general site conditions and environmental sensitivities, such as hazard tree identification, vegetation management requirements, clearances and anticipated cycle times is gathered during these patrols/inspections. Routine patrols allow Nelson Hydro to establish regular vegetation management cycles and schedules for problem vegetation removal. At the end of each cycle, growth rates and minimum acceptable clearances are established to maintain a balanced plan.

All inspections under this Plan will be completed by qualified and competent professionals who can assess danger and hazard trees or identify and quantify invasive and noxious plant occurrences.

Where feasible, preventative measures are incorporated into corridor designs prior to construction or may be implemented during infrastructure upgrades. In some instances, these measures may reduce the need for future maintenance requirements of pesticide and non-pesticide control methods.

3.2. Identification of Species

[IPMR Section 58(2)b(ii)]

Accurate identification of undesirable vegetation is important for several reasons:

- Depending on their growth rates, characteristics and physical location, they may become problematic vegetation;
- Control methods for problem vegetation may differ depending on the species. For example, conifers are always controlled using non-chemical methods, whereas other species may only be effectively controlled through a combination of chemical and non-chemical methods. An example of the latter would be certain deciduous tree species that are best controlled by manual cutting followed by the application of an herbicide to the freshly cut stump to inhibit re-sprouting;
- Plants identified as noxious weeds or invasives would be considered as undesirable vegetation, as provisions of the BC Weed Control Act require occupiers of land to control noxious weeds; and,
- Certain brush and shrubs, depending on their growth habits, may interfere with access for maintenance and inspections and would be considered problem vegetation.

Numerous publicly available resources will assist in identifying undesirable and problematic vegetation. Table 3-1 below indicates the websites where information on identifying and managing tree, shrub and weed species can be accessed.

Table 3-1: Online Resources for Species Identification and Nelson Community Plans and Best Practices

Source	Document	Web Link
Ministry of Forests	Tree Identification	www.for.gov.bc.ca/hfd/library/documents/treeb ook/in dex.htm
E-Flora BC	Electronic Atlas of the plants of BC	www.eflora.bc.ca
Invasive Species Council of BC	Field Guide to Noxious Weeds And Other Selected Invasive Plants of BC	Field-Guide-to-Noxious-Weeds-12th-WEB.pdf
Central Kootenay Invasive Species Society (CKISS)	Nelson IPMA, Plant Priority List 2025	https://ckiss.ca/wp-content/uploads/2025/05/Priority-List-External_2025.pdf
Invasive Species Council of BC	Fact Sheets on Invasive Plants	Find an Invasive Species - Invasive Species Council of British Columbia
BC Weed Control Regulation	Schedule A noxious weeds	https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/10_66_85#ScheduleA
InvasivesBC database (formerly IAPP, report a weed)	Batch Uploader for terrestrial observation & chemical treatment	https://invasivesbc.gov.bc.ca/Landing

Source	Document	Web Link
Government of BC website	InvasivesBC field forms: aquatic, biocontrol, monitoring and treatment	https://www2.gov.bc.ca/gov/content/environm ent/plants-animals-ecosystems/invasive-species/invasivesbc/invasivesbc-resources#field-forms
Government of Canada	Migratory Birds Regulations, 2022	https://laws-lois.justice.gc.ca/eng/regulations/SOR-2022-105 (last amended on 2024-10-04)
Ministry of Forests	Field Guide to the Biological Control of Weeds in British Columbia	https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/invasive-species/publications/field_guide_to_the_biologi cal_control_of_weeds_in_british_columbia.pdf
Nelson Hydro website	Vegetation Management Plan	https://www.nelson.ca/DocumentCenter/View/5505/2024-Nelson-Hydro-Five-Year-Vegetation-Management-Plan
Nelson Hydro website	Vegetation Management Best Practices	Nelson-Hydro-Vegetation-Best-Management-Practices
Nelson Hydro website	Nesting Bird Management Practices	NH Nesting Bird BMP
City of Nelson Community website	Interim Urban Forestry Plan	nelson.civicweb.net/document/128081/
City of Nelson Community website	Fire Smart Plan	Community-Wildfire-Resiliency-Plan
City of Nelson Community	Spill Response Plan	Contact for Emergency Management BC: 1-800-663-3456 https://www.nelson.ca/3094/Spill-Response
Health Canada	Pesticide Label Search	https://pr-rp.hc-sc.gc.ca/lr-re/index-eng.php

3.2.1. Types of Problem Vegetation on ROW

Vegetation on rights-of-way can be grouped into several broad categories according to their growth form. Categories include grasses, sedges, herbaceous (broadleaf) forbs, ferns, vines, and woody plants (brush, trees, shrubs). Table 3-2 lists the primary problem species encountered on ROW.

Except for plants designated as noxious under the BC *Weed Control Act*, problem vegetation (native, woody-stemmed plants and vines) might also occur on Nelson Hydro ROWs.

Table 3-2: Problem Vegetation and Their Characteristics

Problem Vegetation	Vegetation Characteristics and Control Method
Vines	• Can be either woody or herbaceous • Often have persistent, woody stems • Easily invade weed-free areas • Can climb utility poles and signs, severely reducing access to structures. • Most vines are either woody or herbaceous, but a few are annuals. Selective herbicide treatment is the preferred control.
Woody Plants: Brush, Trees & Shrubs	• Perennials that reproduce by seed or from sprouting roots • Brush and shrubs have several stems that grow to 3 metres in height • Trees are divided into hardwoods (deciduous) and conifers, and usually have a single stem and grow greater than 3 m in height • Trees are the primary target in ROW vegetation management due to their height and potential for contact with power lines • For conifers, mechanical, non-chemical methods are the preferred control due to their inability to resprout from cut areas • For deciduous trees, a combination of mechanical methods followed by the selective application of herbicides to eliminate re-sprouting is preferred

3.3. Monitoring Populations of Problem Vegetation

[IPMR Section 58(2)(c)(i)(ii)(iii)]

Nelson Hydro staff and/or their contractors monitor problem vegetation, including hazard trees. This is completed through Fulcrum to identify issues requiring mitigation. Depending on the terrain, monitoring is generally carried out on foot or by vehicle. Monitoring typically consists of a visual inspection, where the density, location and type of vegetation present are documented.

Monitoring provides a record of information about weed occurrence, density, and site conditions. Monitoring also includes recording information on changes to weed species composition, distribution, and density over time, as well as changes to adjacent plant communities that could invade the facility or ROW. The CKISS Regional Invasive Plant Priority List (See Table 3-1 for web link) and the percentage weed cover of an infestation are used to determine the Treatment Threshold (the level above which treatment is warranted). This will be described in Section 3.5 (Pest Treatment Methods/Options).

Monitoring occurs visually and is documented in writing. Nelson Hydro uses tree risk identification and evaluation processes based on Nelson Hydro's Vegetation Best Management Practices, to make decisions regarding what particular hazards are associated with a specific tree or a grouping of trees. The results of monitoring from inspection/patrols are used to determine what action is required to minimize potential risks associated with the possibility of vegetation coming into contact with transmission and distribution lines.

Table 3-3 below provides a summary of the Nelson Hydro monitoring program.

Table 3-3: Summary of the Nelson Hydro Monitoring Program

Monitoring Method and Practices	Monitoring Frequency	Data Collection / Planning
Ground Inspection/Patrol	At least once annually (Spring or Fall)	GPS, plant species, physical location, hazard rating ¹
GIS Mapping and weed reporting using InvasivesBC, an online database for long-term monitoring records ³	Annually, as part of post-treatment evaluations (Late Summer or early Fall)	Inventory of noxious weeds, invasives and other problem vegetation Geo-reference species, density & distribution to plan future control priorities and site risk ²
Public/ Internal Reports	Frequency could change upon receipt of the report	Site-specific work plan
Notes: 1. Hazard rating is determined by the combination of (1) the presence of vegetation that could grow into contact with transmission and distribution lines, and (2) the presence of trees that are defective (i.e. hazard trees) that could hit or damage transmission or distribution lines when they fall. 2. The CKISS Regional Invasive Plant Priority framework determines risk ranking, Priority Categories 1 to 5, and the recommended management approach. See Table 3-1 for web link. 3. Submit an access request to use the application. A link to Training Videos is found on the Invasive BC webpage header. Data collection and mapping are currently in the trial phase, as GIS processes are still in the early development stage.		

3.4. Treatment/Injury Thresholds and How Treatment Decisions Are Chosen and Applied

[IPMR Section 58(2)(d)(i)]

Nelson Hydro will use the CKISS Invasive Plant Priority framework to guide weed treatment efforts and to inform contractors on the recommended level of control that will satisfy their injury threshold (i.e., risk to structural integrity and safety of infrastructure). The framework is based on the provincial and regional regulation for noxious weed and invasive plant control, managed by the BC Ministry of Forest. CKISS also maintains a watch list of invasive species not currently known to exist in the Central Region that will be targeted as Early Detection Rapid Response (EDRR) plants with the goal of immediate eradication if found.

EDRR species must be reported to the local Invasive Species Society and the Ministry of Forests immediately.

The CKISS Regional Invasive Plant Priority List consists of 174 plant species, including EDRR species that could be found in the BC Interior. Species listed have been assigned a priority category (i.e., Prevent, Eradicate, Contain, Strategic Control, or insufficient information-control based on management objectives). Typically, species overlap between provincial and regional lists; however, some regional priorities may not be provincially regulated. See Table 3-1 for a web link to the 2025 Regional Plant Priority List.

Weed infestations will be assessed based on the threats they pose, taking into account the characteristics of the species, their nature, location and size, as well as the risks they present to ecosystem biodiversity. Newly disturbed sites or past areas where treatment was ineffective will be prioritized for monitoring and

early treatment.

With the exception of noxious weeds, initiating treatment for problem vegetation is based almost exclusively on clearance specifications. In addition, for employee and contractor safety, limits of approach have been established for working near energized conductors or equipment.

3.4.1. Clearance Specifications

3.4.1.1. Initial Clearing/New Construction

The objective for vegetation management is to remove all tall-growing tree species from new ROW and remove any hazard or problem trees outside the rights-of-way, before construction. In all areas, the intent is to remove these tree species that can grow to heights that will allow them to encroach within the Limit of Approach to energized conductors. In the case of deciduous species, herbicide treatment of the stump to reduce re-sprouting will also be applied, where required. Whenever possible, tall-growing species will be selectively removed (and treated with herbicide to prevent re-sprouting), leaving low-growing species intact. Low-growing vegetation will inhibit the regrowth of tall-growing species and will not be treated. Where removal is not possible, alternate routing or a different pole construction should be considered. Pruning will only be used when no other alternative exists. Table 3-4, and A Statutory Right of Way (SRW) width is typically 30m for a transmission line corridor; however, this does not always apply since risks outside of the SRW must also be assessed and mitigated if a potential for line contact is observed. Nelson Hydro will seek landowner co-operation when possible and follow approved Integrated Pest Management Plans for herbicide treatment on private land. In cases where vegetation management is necessary near sensitive riparian areas and found to overlap the SRW, appropriate setbacks will be implemented (Nelson Hydro 5yr Plan 2024).

Table 3-5 illustrate the required minimum clearances.

Table 3-4: Initial Clearing/New Construction - Clearance to Distribution Lines (under 63 kV)

Overhead Clearance	• No vegetation overhang is permitted
Side Clearance	• 6 metres from the conductor for 3-phase primary • 5 metres from the conductor for 1-phase primary • 3 metres from the conductor for secondary
Under Clearance	• Remove all undesirable tree species in the clearance zone. When removal is not possible, achieve a clearance that is the greater of: ○ 3 metres from the neutral conductor, OR ○ 1.2 metres from joint use contacts

A Statutory Right of Way (SRW) width is typically 30m for a transmission line corridor; however, this does not always apply since risks outside of the SRW must also be assessed and mitigated if a potential for line contact is observed. Nelson Hydro will seek landowner co-operation when possible and follow approved Integrated Pest Management Plans for herbicide treatment on private land. In cases where vegetation management is necessary near sensitive riparian areas and found to overlap the SRW, appropriate setbacks will be implemented (Nelson Hydro 5yr Plan 2024).

Table 3-5: Clearance to Transmission Lines (63 kV and over)

Overhead Clearance	No vegetation overhang is permitted
Side Clearance from Statutory Right-of-Way (SRW) Centerline	<u>Optimum</u> - No trees capable of falling on lines (all voltages) - Statutory Right-of-Way (SRW)* 63 kV – 16 metres <u>Minimum</u> 63 kV – 5 metres
* Vegetation management will occur within the defined SRW unless the ROW width is unknown. It is recommended to manage to Nelson Hydro's new construction standard on private land and Ministry of Transportation and Transit (MOTT) corridors.	

3.4.1.2. Existing Lines/Rights-of-Way

Clearance requirements for existing lines/rights-of-way depend on line voltage. Special clearance requirements for radial circuits to mountain repeaters are summarized in Table 3-6 and Table 3-7.

Table 3-6: Clearance to Distribution Lines (Under 63 kV) for Radial Circuits to Mountain Repeaters

Overhead Clearance	No vegetation overhang is permitted
Side Clearance	5 metres

Table 3-7: Clearance to Distribution Lines (Under 63 kV) for Existing Constructions

Overhead Clearance	3 metres from the conductor
Side Clearance	3 metres from the conductor for three phase primary
Under Clearance	- Remove all undesirable tree species in the clearance zone. When removal is not possible, achieve a clearance that is the greater of: 3 metres from the neutral conductor, OR 1.2 metres from joint use contacts
The exception to the above clearance requirements is that mature conifers with 1.5 metres of side clearance will not require pruning. If pruning is required, a minimum distance of 3 metres must be obtained.	

3.4.2. Limits of Approach

Nelson Hydro has established limits of approach that specify how close work can take place, given certain voltages and ensure that work being carried out near energized conductors is undertaken in a safe manner. Limits of approach to energized conductors or equipment for all Certified Utility Arborists and Apprentice Utility Arborists are shown in Table 3-8.

All unqualified personnel working near Nelson Hydro must stay outside the designated limits of approach.

Table 3-8: Limits of approach to energized conductors or equipment for all Certified Utility Arborists and Apprentice Utility Arborists

Voltage Range	Insulated Tool Limits for Certified Utility Arborists	Normal Work Limits for Certified Utility Arborists	Normal Work Limits for Apprentice Utility Arborists
Phase to Phase	(metres) *	(metres)	(metres)
750v to 20 kV	0.60	0.9	3
Over 20 kV to 30 kV	0.75	1.2	3
Over 30 kV to 75 kV	0.9	1.5	3
* Limits updated per Work Safe BC (Table 19-4)			

3.5. Pesticide Treatment Options and Methods

[IPMR Section 58(2)(e)(i)(ii)(iii)]

IPM involves the use of different techniques to control invasives, noxious weeds and problem vegetation, including hazard trees.

The selection of a particular technique will depend on:

- How the required clearance specifications can be achieved;
- Adjacent land use (public or private);
- Proximity of water sources, bodies of water, and other environmentally sensitive features (i.e., riparian habitat);
- The possibility of adverse impacts to wildlife, fish, the surrounding land, workers and adjacent residents;
- Safety, security and economic impacts;
- Existing soil types, species of problem vegetation present, objectives of control, and how these relate to the suitability of the particular method(s) being considered, such as site accessibility and the consequences of not treating.

General site conditions and environmental sensitivities assessed during regular inspections or patrols (i.e., monitoring) will be re-evaluated for control efficacy, allowing a period for pesticide kill. The IPM techniques proposed for use under this IPMP include

- Physical controls;
- Cultural controls;
- Biological controls; and,
- Chemical control using an herbicide subclass of pesticide.

Herbicides, a specific type of pesticide designed to target unwanted plants or weeds, may be considered for use where physical, cultural and biological methods alone are insufficient for effectively managing problematic vegetation.

The targeted purpose for each herbicide approved for use under this IPMP will be discussed in detail in

Appendix C. During all herbicide use, disturbance to low-growing vegetation will be minimized when controlling problem vegetation by selective applications.

3.5.1. Non-Chemical Treatment Options

[PMR Section 58(2)(e)(i)(ii)(iii)]

Physical controls were historically applied to manage vegetation growing within or adjacent to Nelson Hydro facilities. A combined control method will be considered where physical treatment alone does not provide effective vegetation management.

3.5.1.1. Physical Treatment Methods

Physical controls may include brushing (selective slashing), mowing, frilling (girdling), grooming, and pruning. Table 3-9 provides a description, rationale and the benefits and limitations of each physical treatment method.

Table 3-9: Description and Rationale, Benefits and Limitations of Physical Treatment Methods

Description & Rationale	Benefits/Limitations
Brushing (selective slashing) involves using chainsaws, circular brush saws, or other hand tools to selectively remove individual stems of problem vegetation. Problem vegetation is cut as close to the ground as possible (i.e. 5 cm), depending on surface conditions. Brushing is species-specific and enables desirable vegetation to be left on the ROW, and to inhibit the growth of tall-growing species. Brushing is the preferred manual/mechanical control method in riparian areas or areas with stumps, rocks or steep slopes where mowing cannot be used.	Brushing is preferable to other methods in areas with a well-established, low-growing compatible plant community, as it can selectively control the taller, problem vegetation. Brushing may also be used to remove hazard trees from the perimeter of a ROW. A hazard tree is defined as a tree in imminent danger of falling onto the ROW (and limiting access for maintenance, repair, emergencies, and conducting patrols and inspections). Brushing allows for the retention of low-growing, compatible species while selectively controlling the problem vegetation, especially when the problem vegetation is widely scattered. It is advantageous for deciduous vegetation control, as it allows the follow-up selective application of herbicides to cut surfaces to inhibit re-sprouting. Because brushing can be done without increasing slope stability, erosion potential or causing damage to the streambed of bodies of water and riparian areas, it is a preferred manual/mechanical method. Brushing is generally not suitable or economical for areas with high stem densities. It may also be dangerous for workers if the vegetation is dense or in areas of steep terrain. Brushing taller vegetation generally results in excessive debris that could increase fire risk, especially in areas covered under the <i>BC Wildfire Regulation</i>. Brushing of deciduous vegetation does not inhibit re-sprouting as much as mowing does.

Description & Rationale	Benefits/Limitations
Mowing is conducted with track-mounted or wheel heavy-duty flail or rotary cutters driven over the ROW to cut problem vegetation.	Mowing is the preferred method of controlling problem vegetation on ROWs. Mowing can give control for one or more seasons, especially when the problem vegetation is primarily non-deciduous. If mowing is directed only towards problem vegetation, existing ground cover (and biodiversity) is not negatively impacted. Mowing is less expensive than other manual/mechanical methods, as problem vegetation can be removed faster. As mowing mulches, the vegetation and leaves less debris than other manual/mechanical methods, it is the preferred method for ROWs located within 300 metres of forested land or grassland areas to prevent any fire from spreading (<i>BC Wildfire Regulation</i>). Mowing is generally unsuitable for use in rocky areas, with stumps or on slopes or boggy areas, due to restricted access or worker safety considerations. Mowing is unsuitable for use in riparian areas or areas where low-growing compatible species predominate. Mowing often promotes the re-sprouting of deciduous vegetation, resulting in the need for future treatments or herbicide applications to inhibit re-sprouting. Because mowing uses wheel or track-mounted equipment, there is generally widespread soil disturbance (track marks and rutting) that can lead to the establishment of noxious weeds and invasive plants.
Frilling (girdling) involves cutting a strip of bark from around the entire tree trunk with an axe or other hand tool. This causes damage to the phloem tissue within the sapwood. Transport of nutrients (needed for photosynthesis) to the roots is inhibited, which causes the tree to die slowly.	This technique effectively kills the tree roots but does not affect the above ground parts. The method, which is very labour-intensive, is helpful in areas adjacent to water bodies or other environmentally sensitive areas where pesticide application is not permitted. Frilling also allows for the selective management of individual stems and species, which can be removed on a tree-by-tree basis. Because trees remain standing for 2 to 3 years after frilling, this method will not increase accessibility to the ROW. It is a useful method for controlling danger trees and problem trees on the perimeters of the ROW.

Description & Rationale	Benefits/Limitations
Grooming is the grubbing, rough grading, and seeding of the ROW using heavy equipment such as bulldozers and backhoes. All groomed sites must be re-seeded afterwards with grass or other low-growing species to prevent the growth of problem vegetation, noxious weeds or invasive plants. Grooming is sometimes employed as a control method and to prepare a ROW for alternative uses such as grazing or other agricultural uses.	The main benefit of grooming is the replacement of problem vegetation with a compatible ROW use that will reduce future maintenance requirements and costs. The soil conditions needed to establish viable agricultural uses following grooming only exist in specific locations. Unless re-seeding is done immediately after grooming, the resulting exposure of bare soil can lead to erosion, the establishment of noxious weeds and invasive plants, the loss of wildlife habitat and reduced biodiversity. Grooming does not remove re-sprouting or root suckering species, and may require follow-up herbicide applications.
Pruning is useful for the selective removal of limbs and branches from large native trees growing on the ROW.	Tree removal is generally preferred to pruning within the ROW corridor. Tree pruning can be used where tree removal may not be appropriate. On ROWs bordering on residential areas, pruning is often a more acceptable method of controlling problem vegetation than other manual/mechanical techniques. Pruning may also be used to improve sightlines and access where the main stem of the problem tree is not on the ROW, but the branches are encroaching. Because pruning may have to be repeated regularly, it is costlier and more labour-intensive than other manual/mechanical methods. Knowledge and experience of proper arboricultural techniques are needed for successful pruning. Improper pruning can cause tree damage and can result in unsightly, unhealthy and hazardous trees that may require further remedial action.

3.5.1.2. Cultural Treatment Methods

Cultural controls involve:

- Encouraging the establishment of low-growing, competitive, local native vegetation,
- Encouraging the planting of compatible tree species on adjacent land; and,
- Investigating the development and use of tree growth regulators/inhibitors.

Implementing the cultural control methods mentioned above may reduce the need for long-term management of problematic vegetation. Table 3-10 details the cultural treatment methods' description, rationale, benefits, and limitations.

Table 3-10: Description and Rationale, Benefits and Limitations of Cultural Treatment Methods

Description & Rationale	Benefits/Limitations
Planting Low-Growing Trees and Shrubs on adjacent private land will be promoted where practical and feasible.	Adjacent landowners will be educated on the benefits of planting and maintaining low-growing trees and shrubs for safety, system reliability, and reduced requirements for treatment of problem vegetation. Desirable species include native and cultured trees and shrubs, grasses and/or field crops that are not capable of growing tall enough to interfere with overhead lines.
Planting Compatible Tree Species on private land adjacent to distribution lines will be promoted where practical and feasible. Site-specific species suitability can be determined using the Biogeoclimatic Ecosystem Classification System.	Planting and maintaining trees at sites close to distribution lines will be encouraged, provided the tree is appropriate to the location and ecologically adaptable. This is mainly based on the mature tree's height and the distance to the distribution line.
Tree Growth Regulators/Inhibitors will be investigated for possible use on both ROWs and adjacent land.	Currently, no tree growth regulators/inhibitors products are registered for use in Canada on utility corridors. Once available, Nelson Hydro may include these products in this IPMP where practical and feasible. Potential sites may be distribution lines adjacent to municipal boulevards, where limiting growth may save aesthetically appealing trees from excessive pruning.

3.5.2. Bio-Control Treatment Methods

Biological control techniques utilize agents such as fungi or insects specifically targeting problem weed species. In BC, Bio-Control uses mostly insects and pathogens to reduce invasives and weeds to ecologically acceptable levels. The agents are expected to become self-regulating once established; however, biological control is not considered an eradication tool or suitable for small infestations (FPB 2006). At least twelve distinct agents have established operational status for invasive plant bio-control in BC. Refer to the BC Ministry of Environment and Climate Change Strategy (BC Gov.) for an operational list authorized for invasive plant management. Agent group types are mostly beetles, weevils, moths, and one gall-forming fly. Refer to Table 3-1 for a web link to the Biological Control Field Guide in British Columbia.

A biological control agent currently registered for use in Canada for the control of problem vegetation is Chontrol Paste[®]. This biological control product inhibits the re-sprouting and re-growth from the cut stumps of red alder and Sitka alder. Table 3-11 provides a description, rationale and the benefits and limitations of Chontrol Paste[®].

Table 3-11: Description and Rationale, Benefits and Limitations of Using Chontrol Paste[®]

Description & Rationale	Benefits/Limitations
Chontrol Paste[®] is a registered biological control alternative to using the herbicide active ingredients glyphosate and triclopyr to control red and Sitka alder re-sprouting following manual cutting. It is applied as a paste from a squeeze bottle to freshly cut stumps.	The use of this biological control agent will reduce the need to use chemical pesticides. Because this species of fungus is abundant throughout Canada, its use will not result in a significant increase in the natural environmental background levels of the fungal spores that this species produces. Also, because this product is used by direct application to the cut stumps of target trees, the exposure to adjacent non-target plants will be negligible (i.e., there will be no drift, as the product is not sprayed). Apart from this product being registered for only two tree species, there are no known limitations to using this biological control agent.

3.6. Chemical Treatment Methods

[IPMR Section 58(2)(e)(i)(ii)(iii)]

Herbicide use is often the only practical and safe method of controlling vegetation in areas inaccessible to motorized equipment.

3.6.1. The Reason for Pesticide Use

Although a primary objective of this IPMP is to minimize pesticide use to control problem vegetation where viable alternatives exist, pesticides are an important tool in ROW vegetation management.

The selective and limited use of pesticides is an integral part of the Nelson Hydro IPM program. An IPM program that combines manual/mechanical methods, cultural control methods, and biological control methods discussed earlier, with the site-specific use of pesticides, is often the only effective way to establish a stable, low-growing plant community vegetation management on rights-of-way, including

transmission corridors, distribution networks and access roads. Manual/mechanical control methods alone will not keep deciduous vegetation below injury thresholds over the long term due to re-sprouting. Re-sprouting is a biological response to injury resulting from mowing, brushing, grooming and certain types of pruning. When a single stem is cut, multiple stems can grow from the severed stump or root system (called root suckering). These re-sprouts are fast growing because they are fed from the root system that is already well established. A repetitive cycle of manual/mechanical control and the resulting re-sprouting can increase tall-growing species' density.

Depending on the species, the number of shoots/re-sprouts per stem can increase up to 100 times, with re-growth usually averaging 1.5 to 3.0 metres per year following manual/mechanical treatments. Within this IPMP, except for complying with provisions of the *BC Weed Control Act* that require occupiers of land to control noxious weeds, herbicides will only be used to control the re-sprouting of problem deciduous vegetation. This will be done by:

- Injection into individual stems;
- Application onto the bark of individual stems;
- Application to the cut surface of stumps following manual/mechanical treatment methods; or,
- Application onto the foliage of deciduous vegetation that is “missed” following stem injection, basal bark application or cut surface of stumps the previous year.

Non-chemical methods will remain essential parts of the Nelson Hydro IPM program. In some instances, however, these methods can be impractical, dangerous for the workers, incompatible with environmental protection values, labour intensive and expensive. In certain areas, mechanical methods cannot be used for vegetation control. Steep terrain may limit mower access and can be dangerous for a chainsaw operator. Exceedingly dense brush can create both visibility and a physical hazard for workers. It can result in an increased incidence of injuries due to slipping and tripping while operating power equipment. Mechanical methods are non-selective and can lead to soil erosion by removing a high percentage of the vegetative ground cover. They can also damage compatible plant species such as low-growing shrubs and grasses. Biodiversity is reduced when non-selective mechanical methods remove most of the vegetation from a site. Studies have shown that there are health risks for workers arising from exposure to power saw exhaust during brushing activities. The exhaust of a brush saw or a chainsaw has been shown to contain many toxic compounds, including potent mutagens, carcinogens, irritants and central nervous system depressants. Power saw use from brushing or thinning operations can have direct and indirect environmental effects, specifically altering microhabitats and displacing birds and small mammals during nesting and breeding seasons. It can also be a fire risk, igniting dry vegetation. From an economic viewpoint, mechanical methods have been shown to cost, on average, four times more per hectare than control of the same vegetation using herbicides.

Pesticide use has not been shown to impair applicator health, provided that personal protective measures and equipment are adhered to, as indicated on product labels. With the exception of the active ingredient glyphosate, all pesticides proposed for use are selective in their mode of action (i.e., they will not affect grasses growing on a treatment site, thus reducing the chances of soil erosion). Due to their generally selective use (to control re-sprouting of deciduous vegetation), their impacts on biodiversity will be generally less than with mechanical methods.

3.6.2. Pesticide Identification, Application Equipment, and Application Methods

The herbicide active ingredients proposed for use under this IPMP are:

- aminocyclopyrachlor
- aminopyralid
- clopyralid
- Chondrostereum purpureum
- dicamba
- diflufenzopyr
- floupyrauxifen-benzyl
- fluroxypyr
- glyphosate
- imazapyr
- metsulfuron-methyl
- picloram

Some herbicide products may have identical active ingredients but a different trade name and pesticide control product (PCP) number issued by the federal Pest Management Regulatory Agency (PMRA). These herbicides are considered equivalent and can be used under this IPMP. See Appendix C for a detailed description of common herbicides, species efficacy and environmental toxicity specified by WorkSafe BC.

Note: Chemical Safety Data Sheets (SDS) and product labels must be on-site when a contractor conducts applications on Nelson Hydro property.

3.6.3. Pesticide Application Equipment

[IPMR Section 58 (3)(c)]

The equipment proposed for applying chemicals under this IPMP is listed below. A description, rationale for use, and the benefits and limitations of each of the application methods/techniques are shown in Table 3-12.

Backpack is a portable, manually operated, pressurized container with a positive shut-off system and a nozzle for applying pesticides. It operates under low pressure, thus minimizing the possibility of chemical drift. It is beneficial for spraying small areas or individual trees and plants (e.g., noxious weed species). Within this IPMP, backpack sprayers may be used for herbicides proposed for use in foliar, cut stump, and/or basal applications.

Wick/Wipe-On Applicator may be used to selectively apply pesticides containing the active ingredient glyphosate by making contact with plant surfaces. Only small amounts of glyphosate are applied, so the need for pumps, control devices and spray tanks are eliminated. Wick/wipe-on application is ideal for vegetation management in areas where no spray drift can be tolerated.

Handgun (Power Hose and Nozzle) is a hand-held spray gun and hose attached to a portable tank filled with pesticide solution, usually with a power-driven pump to provide pressure to the herbicide solution in the hose. Handguns are generally used where large areas of vegetation have to be controlled, but may also be used for the control of noxious weeds and invasive plants. Within this IPMP, handguns may be used for the foliar application of all the active ingredients for vegetation management as well as for the selective control of noxious weed infestations and invasive plant patches.

Squirt Bottle is a hand-held, non-pressurized container used to apply very small amounts of the herbicides directly onto foliage or cut tree stumps.

Injection Tools: A battery-powered drill or automatic lance is used to inject herbicide capsules into a target tree's stems or stump. This can also include a syringe type applicator, where permitted per the herbicide product label.

3.6.4. Pesticide Application Methods/Techniques

Herbicide application methods/techniques proposed under this IPMP include foliar, wick/wipe-on, and cut surface applications. Active ingredients commonly associated with herbicides applied using these techniques and the preferred equipment are outlined in Table 3-12.

Table 3-12: Description and Rationale for Use, Benefits and Limitations of Herbicide Application Methods/Techniques

Description & Rationale	Benefits/Limitations
Foliar applications involve using a manually operated pressurized backpack sprayer or a handgun, which can be used to apply all active ingredients. This method/technique is most effective when the target vegetation is actively growing.	Foliar applications can be carried out at any time of the year, provided the target plants are actively growing. As foliar applications are susceptible to drift, caution must be exercised around desirable plants and environmentally sensitive areas. If non-selective pesticides are applied (e.g., glyphosate), they will control both the target vegetation and desirable growing plants.
Wick-Wipe-on applications involve using a wick soaked with the active ingredient glyphosate that is wiped or dragged over the foliage of the target vegetation. This technique will generally be used where cut stumps have re-sprouted, or for treating small patches of vegetation within facilities in areas where no drift can be tolerated.	This application technique virtually eliminates drift and is useful for the safe and effective treatment of individual plants or stems in desirable vegetation areas. However, this technique is labour intensive and is only practical for small treatment areas or for a small number of individual plants.
Cut Surface applications will be used in conjunction with manual treatments to control deciduous vegetation. With this method/technique, the problem vegetation is cut as low to the ground as possible, and herbicide is applied to the cut surface of the stump, or applied onto the bark, or injected into individual stems, to limit re-sprouting. The active ingredients glyphosate and triclopyr may be applied using this method/technique.	This method/technique is preferable in highly visible areas or areas where standing dead trees do not meet treatment objectives. Because the application is restricted to the cut surface of freshly cut stumps, there is generally no chemical drift, resulting in minimal impact to fish, wildlife, and bodies of water, water sources, and food intended for human consumption. Cut surface applications pose little risk of herbicide exposure to workers or the general public. This technique may not be successful if treatment is not undertaken immediately following physical control.

Table 3-13: Herbicide Mixtures by Application Method

Manner of Application	Active Ingredient	Equipment Required
Foliar	aminocyclopyrachlor	- Backpack sprayer - Boom sprayer - Powerhose - Wick
	aminopyralid	
	clopyralid	
	dicamba	
	diflufenzopyr	
	florpyrauxifen-benzyl	
	fluroxypyr	
	glyphosate	
	imazapyr	
	metsulfuron-methyl	
	picloram	
	triclopyr	
	2,4-D	
Cut stump	<i>Chondrostereum purpureum</i>	- Backpack sprayer - Spray bottle - Squirt bottle - Modified brush saw
	glyphosate	
	imazapyr	
	picloram	
	triclopyr	
	2,4-D	
Basal bark	glyphosate	- Backpack sprayer - Spray bottle
	triclopyr	
Injection	glyphosate	Injection lance
	triclopyr	
	imazapyr	
Frilling/hack-and-squirt	glyphosate	- Backpack sprayer - Spray bottle - Squirt bottle

3.7. Treatment Method Selection Criteria

[IPMR Section 58(2)(e)(iv)]

IPM involves a decision-making process examining the various treatment options for any particular vegetation complex. This decision-making process ensures that the most suitable, effective, environmentally compatible and cost-effective method or combination of methods is selected.

In making these decisions, Nelson Hydro personnel will generally use the following assessment criteria to justify and evaluate the method(s) chosen:

- How the required clearance specifications can be achieved;
- Species of problem vegetation (conifer/deciduous);
- Location of the problem vegetation, including adjacent land use;
- Accessibility to the problem vegetation (terrain, slope, remoteness of sites);
- Safety issues (the public, Nelson Hydro personnel and contractors), including fire risk;
- Objectives of the vegetation management;

Risk analysis for taking no action:

- Stem density and height of problem vegetation;
- Public concerns and the effect on adjacent property owners and land uses;
- Short and long-term impacts of the method(s) being considered;
- Expected efficacy of the method(s) being considered;
- Benefits and limitations of each technique;
- Cost effectiveness;
- Environmental considerations (proximity to water sources and drinking water, waterbodies and riparian areas, agricultural crops and wildlife and fish habitat, food growing or planted for human consumption). Importantly, prevention strategies for contamination of food intended for human consumption;
- For pesticide treatments, the choice of pesticide, application methods/techniques and application equipment; and,
- Variable weather conditions and contingency planning for modifying application methods.

Nelson Hydro will work closely with the contractor to ensure that treatments are applied at the most effective time to control the problem vegetation. If the treatment option being considered involves using a herbicide, the most effective control will be achieved if the chemical is applied to the correct growth stage of the weed.

3.8. Post-Treatment Evaluations

[IPMR Section 58(2)(f)(i)(ii)(iii)]

All applications of pesticides for the management of problem vegetation under this IPMP will be undertaken by contracts issued to qualified companies possessing a valid BC Pesticide User License. All pesticide applications will be made by certified pesticide applicators in the appropriate certification category or supervised by an appropriately qualified/certified applicator.

Post-treatment evaluations will be conducted for all areas treated under contract. Nelson Hydro will assess treatment effectiveness during routine operations and maintenance visits. These inspections will verify the success of vegetation treatments by contractors.

Upon completion, all contract work will be inspected to determine:

- Compliance with the commitments made in this IPMP;

- Compliance with the Integrated Pest Management Act and Regulations;
- The site objectives have been achieved;
- The success of the treatment methods employed;
- If pesticide free zones, no treatment zones and buffer zones were maintained;
- If any adverse environmental impacts have occurred, and,
- If corrective action is required.

Inspections will be undertaken on the ground and generally based on visual evaluations. Invasive BC has developed fillable PDF forms to record visual observations and document vegetation management efficacy. Among the twelve record types is a Chemical Treatment Monitoring Field Form (See Table 1). Evaluations may include both qualitative and quantitative determinations of mortality to the targeted problem vegetation and documentation of any non-target mortality on other organisms that is evident. Effectiveness of the treatments will be determined by comparing pre-treatment and post-treatment vegetation (by percentage of surface area). It is recommended that a competent invasive plant specialist assist with field evaluation.

4. Operational Information

[IPMR Section 58(3)(a)]

The operational information included in this section includes:

- Qualifications and responsibilities of persons applying pesticides;
- Procedures for safely transporting pesticides;
- Procedures for safely storing pesticides;
- Procedures for safely mixing, loading and applying pesticides;
- Procedures for the safe disposal of empty pesticide containers and unused pesticides; and,
- Procedures for responding to spills of pesticides.

4.1. Qualifications and Responsibilities of Persons Applying Pesticides

All pesticide applications will be conducted or supervised by a person who holds a Pesticide Applicator Certificate endorsed for the class of pesticide and the pesticide use required for pesticide applications under this IPMP. Any individual or company (i.e., a contractor) that provides a service to Nelson Hydro by applying commercial or industrial pesticides must have a valid BC Pesticide User License.

The responsibilities of the Certified Pesticide Applicator are to:

- Be in continuous attendance at the site;
- Have available proof of certification;
- Supervise no more than four uncertified assistants at one time;
- Maintain continuous contact, auditory and/or visual, with the uncertified assistants;
- Be within 500 metres of persons being supervised; and,
- Comply with the standards contained in Division 7 of the IPMR.

4.2. Procedures for Safely Transporting Pesticides

[IPMR Section 58(3)(a)(i)]

Personnel shall follow these procedures for safely transporting pesticides:

- Limit the number of pesticides that will be carried in any one vehicle. The quantity shall be no more than necessary for each project, except for transportation between storage facilities.
- Ensure pesticides are carried in a secure compartment against spillage and unauthorized removal. The compartment shall be separate from food and drinking water, safety gear, spill containment equipment and people.
- Inspect all pesticide containers for defects before transporting. Keep pesticides in their original containers and with their original labels. If original labels are unavailable, the wood pesticides shall be placed in appropriate containers with the trade name, active ingredient concentration, and pesticide registration number affixed to the outside of the container.
- Ensure that the vehicle is equipped with a first aid kit, fire extinguisher, spill contingency plan and

emergency spill kit, and that the operator has been trained on spill containment and clean-up techniques.

- Ensure that all documents and placards are carried in, or placed on, transport vehicles if required under the Transportation of Dangerous Goods Act, the IPMA or the IPMR; and,
- Read and understand the pesticide labels and the product Safety Data Sheets (SDS) for all pesticides being transported.

Conduct a thorough walk-around inspection of equipment, machinery, and storage compartments, ensuring valves are closed, containers are upright and secured, and pumps are shut down. Address any emergency repairs prior to mobilization.

4.3. Procedures for Safely Storing Pesticides

[IPMR Section 58(3)(a)(ii)]

Personnel shall follow these procedures for safely storing pesticides:

- Ensure that pesticides are stored in accordance with the IPMA, IPMR and the WorkSafeBC document Standard Practices for Pesticide Applicators.
- Keep pesticides in their original containers and with original packaging. If original packaging is unavailable, the pesticides shall be placed in appropriate containers with the trade name, active ingredient concentration, and pesticide registration number affixed to the outside container.
- Ensure that storage facilities are locked when left unattended, ventilated to the outside atmosphere, are entered only by persons authorized to do so, and that there is a placard affixed and maintained on the outside of each door leading into the storage area bearing, in block letters that are clearly visible, the words “WARNING – CHEMICAL STORAGE – AUTHORIZED PERSONS ONLY”; and,
- Keep storage facilities separate from work and living areas, and away from food, flammable materials, bodies of water and water sources.

4.4. Procedures for Safely Mixing, Loading and Applying Pesticides

[IPMR Section 58(3)(a)(iii)]

Personnel shall follow these procedures for safely mixing, loading and applying pesticides:

- Ensure that Certified Pesticide Applicators carry out all mixing, loading and application of pesticides, and that all manufacturers’ recommendations, as specified on the pesticide labels, are adhered to;
- Ensure that all mixing, loading and application of pesticides is undertaken in a safe manner. Activities shall be undertaken only in areas at least 15 metres from PFZs, no treatment zones, waterbodies, fish or wildlife habitat and other environmentally sensitive areas;
- Ensure that containers used to mix, prepare or apply pesticides are not washed or submerged in any body of water;
- Ensure that eye wash station(s), protective clothing, safety spill kits, spill response plans, a copy of this plan, each pesticide product’s SDS and Product Label, emergency telephone numbers and first aid supplies are present and available at or near the treatment site; and

- Follow all directions and restrictions on pesticide labels, including adhering to the recommended re-entry times for treatment areas.

4.5. Procedures for the Safe Disposal of Empty Pesticide Containers and Unused Pesticides

[IPMR Section 58(3)(a)(iv)]

Personnel shall follow these procedures for safely disposing of empty pesticide containers and unused pesticides:

- Ensure that all pesticide waste is disposed of in a manner consistent with the requirements of the *BC Waste Management Act* and the Special Waste Regulations, as appropriate.
- Ensure empty pesticide containers are returned to the distributor as part of their recycling program. It is recommended that containers be triple rinsed or pressure rinsed so that they cannot be reused, and disposed of at an approved disposal site; and
- Ensure that all leftover pesticides are stored for future use in a manner consistent with the requirements specified above and complying with WHMIS standards (i.e., clear and appropriate pesticide product labels on all containers)

4.6. Procedures for Responding to Pesticide Spills

[IPMR Section 58(3)(a)(v)]

Personnel shall follow these procedures to respond to pesticide spills. Additional information can be referenced in Nelson Hydro's six-step Spill Response Plan. If contractors under this IPMP have a spill response plan, it must meet or exceed Nelson Hydro's. General procedures include the following:

- Spill response equipment shall be present or near storage (including mobile storage), mixing and loading sites and shall consist of: personal protective equipment, absorbent material, neutralizing material, a long handled broom, shovel, and a waste-receiving container with lid;
- A copy of an approved spill response plan shall be at or near each work site, and all personnel working on the project shall be familiar with its contents;
- All personnel shall be protected from pesticide contamination by wearing appropriate protective clothing and safety gear;
- Any person exposed to a pesticide shall be moved away from the place of the spill;
- First aid shall be administered, if required;
- The source of the spill shall be stopped;
- The spilled material shall be stopped from spreading by creating a dam or ridge;
- The project supervisor shall ensure that operations cease until the spill is contained and the source is repaired;
- Absorbent material shall be spread over the spill, if applicable, to absorb any liquid;
- Contaminated soil or other material shall be removed from the spill site and properly disposed of at a Class 2 disposal facility.
- A 45-gallon drum or UN-rated bulk bag are temporary storage options for contaminated soils or

absorbent materials used for small clean-ups;

- Contaminated soil or other material shall be removed from the spill site and placed in garbage bags or containers;
- The person responsible for the project shall contact Nelson Hydro for shipping instructions and disposal requirements; and,
- When more than 5 litres or 5 kg of the concentrate pesticides are spilled, the person responsible for the project shall immediately report to the BC Provincial Emergency Program by telephoning 1- 800-663-3456 or, where that is not practical, to the local police or nearest detachment of the RCMP.

An approved representative of Nelson Hydro shall be notified of the details related to the spill as soon as practicable by the contractor project supervisor. A formal incident report must be submitted within 24 hours, and in the event of worker injury, contact WorkSafeBC.

5. Environmental Protection Strategies and Procedures

All Integrated Pest Management activities undertaken under this IPMP (both chemical and non-chemical) to manage problem vegetation, including hazard trees, and invasives and noxious weeds on the rights-of-way of linear disturbance areas will incorporate the following environmental protection measures:

- Strategies to protect community watersheds;
- Strategies to protect domestic and agricultural wells and water intakes, bodies of water and streams;
- Strategies to protect fish and wildlife and associated habitat;
- Treatment procedures near riparian areas and strategies for modifying setbacks for protection of transitional upland on the fringe of riparian zones, important for vegetation diversity and herptiles;
- Strategies to prevent pesticide contamination of food intended for human consumption;
- Pre-treatment inspection procedures for identifying treatment area boundaries and identifying where overlap or proximity to cultivated lands within the Agricultural Land Reserve (ALR);
- Procedures for monitoring weather conditions and strategies for modifying pesticide application methods for different weather conditions; and,
- Procedures for pre-treatment inspections to ensure protection of human health and the environment during the treatment period.

In this IPMP, all no-treatment zones (NTZ) will comply with the standards contained in Division 7 of the IPMR. Note that the *Riparian Areas Protection Regulation* (RAPR) is not a mandated regulation applying to the East and West Kootenay regions. In the Kootenays, Riparian protections often fall under Development Permit Areas for environmentally sensitive zones, OCPs, and the *Fisheries and Water Sustainability Acts* for permitting in and around watercourses.

5.1. Strategies to Protect Community Watersheds From Adverse Effects of Pesticide Use

[IPMR Section 58(3)(b)(i)]

Before the application of pesticides, Nelson Hydro shall implement the following strategies to protect community watersheds:

- Locations of community watersheds will be verified by accessing information from the Ministry of Environment, local governments and Official Community Plans (OCPs) or exploring iMapBC, a free BC web mapping tool and provincial geographical database with hundreds of data layers (i.e., land ownership, soils, ecology, water resources atlas).
- Pesticides will not be stored within a community watershed for more than 24 hours prior to their use. They will be removed from the community watershed within 7 days of their use, unless they are stored in a permanent structure.
- Pesticide use will be discontinued if pesticide residues or pesticide by-products are detected at a community watershed water intake, and further use will not be undertaken until the BC Ministry of Health Services (Medical Health Officer) has been satisfied that all required measures have

been implemented to preserve water quality; and,

- Before using pesticides, community watershed maps will be consulted to determine if proposed treatments are within a community watershed or are within 100 metres upslope of any water intake, or 30 metres down slope of any water intake.

5.2. Strategies to Protect Domestic and Agricultural Wells and Water Intakes, Bodies of Water and Streams From Adverse Effects of Pesticide Use

[IPMR Section 58(3)(b)(i)]

Before pesticide use, Nelson Hydro shall ensure that strategies are developed and implemented to identify and protect domestic and agricultural wells and water intakes, bodies of water, and streams. To protect domestic and agricultural water sources and bodies of water during pesticide use, Nelson Hydro and its contractors shall maintain the NTZ and pesticide free zones (PFZ) shown in Table 5-1.

5.3. Strategies to Protect Fish and Wildlife, Riparian Areas, Wildlife Habitat, and Species at Risk From Adverse Effects of Pesticide Use

[IPMR Section 58(3)(b)(ii)]

Nelson Hydro and its contractors shall implement the following strategies to protect fish and wildlife, riparian areas, wildlife habitat and species at risk before control methods (chemical and non-chemical) are implemented under this IPMP. Where wildlife habitat features or *Species at Risk* (SAR) are suspected in a treatment area, it is recommended that Nelson Hydro consult a qualified professional (QP) wildlife biologist. Protection strategies include:

- Maintaining a minimum 15 m NTZ around riparian areas, fish and wildlife and SAR habitat (considered valued habitat);
- Mark/flag the boundaries of any required PFZ and NTZ before control measures are implemented;
- Nesting bird sweeps in the High-Risk breeding period within ROWs where Nelson Hydro is planning powerline maintenance and QP correspondence where evidence of cavity excavating, woodpecker drumming or nest building is visually or audibly observed (i.e. on poles or ground nesting);
- Undertake all pesticide applications in a manner that ensures endangered wildlife species, riparian areas, fish and wildlife and wildlife habitat are not impacted;
- Avoid treating by chemical and non-chemical methods low-growing shrubs and plants that may be browsed by wildlife or used for habitat;
- Cleaning, fuelling and refilling of equipment will not be undertaken within 15 metres of an NTZ;
- Setting up PFZs around inhabited raptor and heron nests, wildlife trees and mineral licks during vegetation management activities; and,
- Minimize soil erosion during vegetation management activities so as not to impact desirable vegetation and wildlife.

5.4. Bird Guidance for Operations during Breeding Seasons

Nelson Hydro recognizes that birds are a large wildlife group that contributes significantly to regional,

continental, and global biodiversity. Federal and Provincial legislation protects bird populations and their nests during species-specific breeding seasons. Under the updated Migratory Bird Regulations (2022), Environment Canada provides recommendations to avoid potentially destructive activities and inadvertent disturbance ('incidental take') during key nesting periods and to minimize or mitigate impacts on nests. Such nests could be internal pole cavities or stick nests in risky pole-top locations. Nesting calendars developed by Environment and Climate Change Canada for migratory birds, and nesting windows for non-migratory birds (e.g. raptors) will guide wood pole maintenance activities conducted by Nelson Hydro.

Furthermore, a Kootenay-Boundary Wildlife Habitat Feature (WHF) Order protects specific high-priority features (bird nests, bat nursery roots, and/or hibernacula in trees) associated with wildlife species of regional management concern. A qualified wildlife biologist (with bird expertise) will be retained when needed to assist with determining nesting activity, protected WHFs and mitigate Nelson Hydro's risk level as a result of a particular construction, operating phase, or other activity such as vegetation maintenance.

Nelson Hydro operations follow the Best Management Practices for Nesting Birds (Nelson Hydro BMP, 2021), which outline initiatives and procedures that support ecological operations. See Table 3-1 for a web link. The Canadian Electricity Association has developed a beneficial management standard to assist utility operators in creating programs to reduce the risk of incidental take and avian injury. The guide is purpose-built to support the growth of a low carbon, clean energy economy while enhancing environmental performance and conservation through minimizing impacts on migratory birds, their nests and eggs (Stantec, 2018). Web link provided in references.

5.5. Strategies to Prevent Contamination of Food for Human Consumption From Adverse Effects of Pesticide Use

[IPMR Section 58(3)(b)(iii)]

Nelson Hydro rights-of-way, including transmission corridors, distribution networks, and access roads, are occasionally located near environmentally sensitive areas such as lawns, vegetable gardens, berry picking and bee keeping areas, and regions containing agricultural crops and domestic animals. Food intended for human consumption is sometimes grown or found within these areas. If food for human consumption is found/identified adjacent to problem vegetation or weeds that may be targeted for control, the following strategies shall be implemented for their protection:

- Non-chemical methods for problem vegetation management shall be considered where treatment objectives can be achieved;
- Where possible, areas containing food plants for human consumption (including berries, medicinal plants and organic farms) shall be located and mapped. A map shall be provided to contractors;
- If control methods involving the application of pesticides are required, PFZs shall be maintained around these areas during pesticide application;
- Treatment Notices shall be posted at public access points to proposed treatment areas advising of treatment near food crops. This will ensure that people are aware that the area has been chemically treated; and,
- Where possible, herbicide treatments shall be conducted at times to minimize impact on food plants (i.e., delay treatments until after the fruiting stage).

The onus is on organic farmers to ensure an adequate buffer zone between their farm and Nelson Hydro

facilities. Local indigenous communities within the Nelson Hydro territory region may use native, culturally important plants for ethnobotanical purposes. Through indigenous engagement, the IPMP holder will encourage the submission of an important species list and locations of sensitive harvest sites to develop avoidance strategies.

5.5.1. Best Practices for Operations in the Agricultural Land Reserve

The ALR is BC's provincial zone that preserves agricultural land for the future. Emphasizing ecological land stewardship, Nelson Hydro will consider best management practices where practicable for vegetation management occurring in overlapping areas or within 100m of ALR zones. The Agricultural Land Commission has developed landscape buffer specifications intended for farmland and intended to be established on the non-farm property (ALC 1993). Awareness of these landscape buffers is important when working near ALR designated lands. Vegetation fencing and more comprehensive shelterbelts (i.e., hedgerows) are intended for the screening of noise, views, dust, sprays and other farm and wildlife shelters. These landscape buffers should follow similar pest control limitations as riparian buffers.

Nelson Hydro operations will use integrated vegetation control strategies, combining mechanical, cultural and targeted chemical controls where possible. Such techniques include mowing with a flail, spot herbicide application and manual removal or grazing. In specific situations, a special method called flame weeding could be an alternative with approvals and consultation with city of Nelson fire department and the fire smart program.

ALR sites are sensitive areas and, as such, align with buffer guidelines under the IPMR. Consideration will be given to drift reduction strategies (i.e., coarse droplets, low boom height, specialized nozzles). Operations within the ALR will be communicated to landowners. If targeting noxious weeds or invasives with chemicals, approval will be obtained to use registered herbicide products for grazing areas and cultivated lands.

5.6. Pre-Treatment Inspection Procedures for Identifying Treatment Area Boundaries

[IPMR Section 58(3)(b)(iv)]

A pre-treatment inspection shall be completed prior to pesticide use to protect environmentally sensitive areas and establish treatment area boundaries. During this inspection, the location of environmentally sensitive areas shall be located, mapped, and demarcated. A pre-treatment meeting/discussion shall be held. All crew members shall be instructed in the flagging/marking requirements (which may include the use of Riparian Zone and PFZ flagging tape), as well as the methodology and procedures for pesticide application and handling and the posting of Treatment Notices by the contractor at locations that meet regulatory requirements.

5.7. Procedures for Maintaining and Calibrating Application Equipment

[IPMR Section 58(3)(b)(v)]

All pesticide application equipment used on Nelson Hydro property shall be safe, clean, in good repair, compatible, and appropriate for the pesticide being used. At minimum, all backpack sprayers and handguns (power hose and nozzle) shall be calibrated once per year before use and at regular intervals throughout the season when changing herbicide products. Re-calibration of equipment shall occur after any equipment modifications or when variability in nozzle output is detected. The frequency of sprayer

calibration shall be dictated by factors such as the formulation of pesticides used and the efficacy of treatments. Contractors must maintain equipment recalibration records.

Table 5-1: Minimum Water Protection Measures for the Protection of Domestic and Agricultural Wells and Water Intakes, Bodies of Water and Streams*

Permitted Applications	NTZ/PFZ	Exception
Domestic and agricultural wells and water intakes, including all methods and pesticides	30 m NTZ	NTZ may be reduced if reasonably satisfied that a smaller NTZ will ensure no pesticide enters the well, water supply, intake or well
Non-Glyphosate Applications		
Around or along a body of water, dry stream, or classified wetland using any pesticide except glyphosate, subject to label restrictions and including all application methods	10 m PFZ	Glyphosate applications (see below)
Glyphosate Applications		
Along or around a body of water, if the body of water is: • non-fish-bearing at any time of the year, or • does not drain directly into a fish-bearing body of water	2 m NTZ	
Along or around a body of water or a classified wetland that is: • fish-bearing, or • that drains directly into a fish-bearing body of water, • or along or around a dry stream that, when wet, is fish-bearing or that drains directly into a fish-bearing body of water	5 m PFZ	
Up to the high-water mark of a temporary free-standing body of water and dry stream, that is: • not fish-bearing at any time of the year • does not drain directly into a fish-bearing body of water	0 m PFZ	
Noxious Weed & Invasive Plant Management -All Uses		
Selective application to noxious weeds & invasive plants if the application is made between 1m & 10m above high water mark	1 m PFZ	

For non-foliar and non-aerial applications, do not apply herbicides more than 1.5 m from a targeted plant.	1.5 m from a targeted weed or plant	Reasonable efforts must be made to protect any biological weed control organisms in the area
Notes *Table information sourced from Division 7 of the IMPR		

Pesticide-free zone (PFZ) – an area of land that must not be treated with pesticides, and must be protected from pesticides moving into it. PFZs are measured by the horizontal distance from the high-water mark. PFZs will be identified and marked/flagged prior to any herbicide application.

No treatment zone (NTZ) – an area of land that must not be treated with pesticides. NTZs will be identified and marked/flagged prior to any herbicide application.

Body of water – any watercourse or body of water, such as a stream, river, wetland, or lake, but not including a human-made, self-contained body of water or structure of water.

Stream – a watercourse that contains water on a permanent or seasonal basis, is scoured by water, or contains observable deposits of mineral alluvium, and which has a continuous channel bed that is 100 m or more in length, or flows directly into a fish stream or a fish-bearing lake or wetland, or licensed waterworks.

Wetland – a swamp, marsh, bog, or other similar area supporting natural vegetation, distinct from adjacent upland. This also includes riparian habitat or a strip of vegetation which benefits from the seasonal high-water period (a transitional zone between terrestrial and aquatic environment)

5.8. Procedures for Monitoring Weather Conditions and Strategies for Modifying Application Methods for Different Weather Conditions

[IPMR Section 58(3)(b)(vi)]

Weather conditions will be monitored prior to and periodically during pesticide applications. Wind speed and direction, precipitation, temperature, and sky conditions (clear, overcast, cloudy, partly cloudy) will be recorded for foliar pesticide applications using backpacks or handguns. Temperature, precipitation, frost and dew conditions will be recorded for stem, bark, wick/wipe-on and stump applications.

Herbicide applications will be shut down if:

- The maximum temperature stated on the pesticide label is exceeded; OR,
- The wind speed and/or direction cause the application of pesticide to drift and/or miss the weeds to drift and/or miss the weeds; OR,
- Wind speed exceeds 8 km/hour; OR,
- It begins to rain, increasing the chances of excessive runoff and leaching.

5.9. Posting of Treatment Notices

Before treatment, Treatment Notices will be posted in locations so that they are clearly visible and legible from each approach maintained by Nelson Hydro for use by the public, employees or contractors to access the treatment area, or at locations where due diligence would seem to require them. The signs shall remain posted for 14 days following pesticide application, and shall contain the following information:

- The trade name or the active ingredient of the pesticide that will be used;
- The date and time of use;
- Precautions to be taken to prevent harm to people entering the treatment area;
- The IPMP confirmation number;
- Contact information for Nelson Hydro to obtain information about the pesticide or pesticide use and voice public safety concerns, and,
- The applicator will maintain a record of where the Treatment Notices were posted for each treatment location.

Treatment of Notice Record and Intent to Treat Form and web links sourcing current documentation, are included in Appendix B.

6. Reporting, Notification and Consultation

6.1. Reporting

Accurate record keeping allows Nelson Hydro and the Administrator, *Integrated Pest Management Act*, to monitor the quantity of pesticides used, and to ensure compliance with the *Integrated Pest Management Act and Regulation*, the commitments made in this IPMP, and the contents of the Pesticide Use Notice.

Nelson Hydro will ensure that the required records described below are maintained.

6.1.1. Confirmation Holder Use Records

Each contracting firm applying pesticides for Nelson Hydro must maintain daily pesticide use records.

Section 37(1) of the IPMR describes the requirements for these records. The following fields are included for all treatment records and must be collected for each treatment location and day of use:

- Region
- Date
- Location Description
- Treatment Type
- Site Priority Recommendation
- Site Photo
- Species percent, Distribution and Density
- Temperature
- Wind Speed
- Wind Direction
- Treatment Method
- Herbicide Trade Name, PCP
- Application Rate
- Mix Used
- Surfactant Used
- Delivery Rate
- Chemical Amount Used
- Area Treated
- Applicator names and certificate numbers
- Comments

A record for each piece of the holder's pesticide application equipment that requires calibration, including the calibration date and the data used for calibration.

6.1.2. Annual Summary of Use Report for Confirmation Holders

In accordance with Section 39 of the IPMR, Nelson Hydro will submit to the Regional Administrator, *IPMA*, by January 31 each year, the required information for operations conducted under this IPMP in the previous calendar year. Summary details will include:

- The name and address of the confirmation holder, and their confirmation number;
- Trade names and active ingredients of the pesticides applied, including their PCP numbers;
- Locations and total area treated (ha);
- Methods used to apply the pesticides;
- Quantity of each active ingredient applied (kg); and,
- Methods of non-pesticide pest controls used and the estimated total area to which pesticides were applied.

6.2. Notifications

Nelson Hydro commits to providing the following notifications with respect to this IPMP:

6.2.1. Notification of IPMP Confirmation

Nelson Hydro will, within 7 days of the plan confirmation date, make available, for the term of the confirmation, a copy of the confirmation and the IPMP with relevant maps at their local offices to allow inspection by the public.

6.2.2. Annual Notice of Intent to Treat

Nelson Hydro will forward, in writing, to the Ministry of Environment (MOE), at least 21 days prior to treatment in each year during which the IPMP is in effect, an Annual Notice of Intent to Treat (NIT) for the following year. The NIT will be submitted to each Regional Office of MOE within whose geographic boundaries pesticide applications are being proposed. The NIT will identify:

- Name and business location of confirmation holder(s);
- Proposed treatment methods;
- Pesticides proposed for use and their method of application; and,
- Estimated area proposed for treatment.

As per Section 42 of the IPMR, for an annual NIT, Nelson Hydro will prepare and retain a map and/or diagram showing the treatment locations for the applicable calendar year, which indicates the following for each treatment location:

- The proposed treatment areas, and
- The geographic features that require a PFZ or a no-treatment zone.

6.2.3. Requests to Amend the IPMP

Nelson Hydro will forward, in writing, the amendments requested for the IPMP to the MOE. Amendment requests to add new application techniques or similar changes will not require further consultation, provided the amendment request is within land owned or controlled by Nelson Hydro.

Amendments to add new active ingredients will require further public consultation.

6.2.4. Notification of Contraventions

Section 72(1)(d) of the IPMR requires that a confirmation holder give written notice to the administrator on a contravention of the *IPMA* or IPMR that involves the release of a pesticide into the environment. Nelson Hydro commits to abiding by this requirement.

6.2.5. Public Notification Prior to Treatment

Notifying individuals, communities and organizations in the time and manner agreed upon during the public consultation process will be completed prior to treatments. Nelson Hydro will maintain a record of all public notifications for each treatment area.

6.2.6. Employee Notification Prior to Treatment

Nelson Hydro will provide internal notification to all potentially affected employees in advance of all pesticide treatments. Employee notification is not normally conducted in advance of control methods such as mechanical cutting or manual removal.

6.3. Consultations

6.3.1. Public Consultation Plan

Prior to submitting a Pesticide Use Notice to the MOE for IPMP confirmation, Nelson Hydro will conduct a public consultation process. The objectives of conducting public consultations when this IPMP is at the draft stage are:

- To increase public awareness of the IPMP process and the principles of IPM, which are embodied in the IPMP.
- To ensure that the public has an opportunity to identify concerns, and for Nelson Hydro to address those concerns, before the IPMP is finalized and submitted, and a Pesticide Use Notice is submitted for confirmation.
- To ensure a transparent and accountable review process for the IPMP.
- To educate the public on the need to conduct vegetation management on Nelson Hydro rights-of-way, including transmission corridors, distribution networks and their access roads; and,
- To explain how the planning process described in the IPMP recognizes the need to protect human health and the environment.

The public will be consulted on the IPMP development via notices in local community newspapers circulated within the geographic boundaries of the IPMP area.

Section 61(1) of the IPMR states that a Pesticide Use Notice must be submitted to the administrator at least 45 days in advance. This notice consists of two parts, the first of which must be published within a two-week period in newspapers that are circulated in the relevant communities and/or the nearest communities. As outlined in Section 61(2), the notice must include the following information:

- The heading “DEVELOPMENT OF A PEST MANAGEMENT PLAN” in block letters;
- A reference number or another identifier unique to the proposed IPMP;

- The applicant's name, address, email address and telephone number;
- A statement that the use of pesticides is intended within the area to which the IPMP applies;
- A description with reference to the communities of the area to which the IPMP applies;
- The proposed duration of the IPMP;
- The trade name and active ingredient of the pesticides proposed to be used under the IPMP;
- The proposed manner of applying the pesticides identified in the IPMP;
- A location of copies of the proposed IPMP and maps of the proposed treatment area;
- The following paragraph "A person wishing to contribute information about a proposed treatment area(s), relevant to the development of the Pest Management Plan, may send copies of the information to the applicant at the address above or email address above within 30 days of publication of this notice".

During the public consultation process, the draft IPMP will be accessible to the public, as stated in the public notifications.

6.3.2. Public Consultation Report

Nelson Hydro will submit to the Administrator, *IPMA*, a Public Consultation Report that contains:

- A summary of public consultations, including the names and addresses of those who provided input, the nature of their concerns and/or recommendations, and the Nelson Hydro response to the input from the public; and,
- A list of newspapers in which notification of the pending IPMP submission appeared, along with the publication dates and a photocopy or tear sheet of a representative advertisement.

6.3.3. First Nations Consultation

The City of Nelson acknowledges that it resides and operates within the unceded traditional territories of the Sinixt, the Syilx, and the Ktunaxa peoples. The engagement will follow the Indigenous Engagement Guide for *Integrated Pest Management Act* Proponents.

6.3.4. First Nations Consultation Report

To assist the Ministry in evaluating the effectiveness of First Nations consultations and Nelson Hydro's response to any concerns raised, Nelson Hydro will compile a report detailing the consultation process and outcomes. This report will be submitted to the Ministry of Environments Administrator of the *Integrated Pest Management Act*, , in conjunction with submitting the Pesticide Use Notice application.

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Appendix A Nelson Hydro Service Territory Map

Appendix B Notice of Pesticide Use Record and Intent to Treat

The *IPMA* Regulation requires that these records be kept up to date. The records may be kept at or near the treatment location during the use. Still, within 60 days of use, they must be kept at the business location identified on the licence or permit application or Pesticide Use Notice. The records must be retained for a period of at least 3 years from the date of pesticide use.

Additional Explanatory Information for Pesticide Use can be found online at:

[Pesticide recordkeeping and reporting - Province of British Columbia](#)

Notice of intent to treat:

Confirmation holders must submit a Notice of Intent to Treat to the Ministry of Environment and Climate Change Strategy at least 21 days before the first pesticide use in a calendar year.

Submit this form electronically to:

IPMReporting@gov.bc.ca

INSERT:

1. PDF of Pesticide Use Record [Form Ref: EPD-IPM-08.03]
2. PDF of Notice of Intent to Treat for Confirmation Holders [Form Ref: EPD-IPM-06.03]

Appendix C Common Pesticides and Management Risks

Aminocyclopyrachlor and Metsulfuron-methyl - Navius or equivalent

This is a selective herbicide that provides pre- and post-emergent control of broadleaved weeds, woody species, vines, and grasses on several non-food use sites, such as rights-of-way, wildlife management areas, recreational areas, turf/lawns, golf courses, and sod farms. The chemical is a systemic herbicide and acts by disrupting gene expression. This causes undifferentiated cell division and elongation. The herbicide can cause damage to specific conifer species such as spruce and pines. Classed as very low toxicity by WorkSafe BC and PMRA.

Aminopyralid – Milestone or Equivalent

This herbicide is a selective, post-emergent herbicide that controls a wide spectrum of broadleaf weeds, including Canada thistle, knapweeds, oxeye daisy, scentless chamomile, and many others. This herbicide is mildly residual and uses reduced application rates to minimize herbicide load on the environment. Classed as very low toxicity by Worksafe BC and PMRA.

Aminopyralid and Metsulfuron-methyl – ClearView or Equivalent

ClearView combines two active ingredients (aminopyralid and metsulfuron-methyl) to produce a selective, post-emergent herbicide that controls a broad spectrum of broadleaf annual and perennial weeds, including Canada thistle, knapweeds, oxeye daisy, scentless chamomile, and many others. This herbicide can be applied for 12-24 months of good control and uses reduced application rates. Classed as very low toxicity by WorkSafe BC and PMRA.

Aminopyralid, Metsulfuron-methyl and Fluroxypyr – Sightline or Equivalent

The combination of three active ingredients allows this herbicide to effectively control broadleaf weeds, invasive plants, and shrubs on rangeland, pasture, non- crop areas, industrial sites and rights-of-way. Difficult to control invasive species such as kochia, including glyphosate-resistant biotypes, are successfully managed with this combination of active ingredients. Classed as very low toxicity by WorkSafe BC and PMRA.

Aminopyralid, Metsulfuron-methyl and Triclopyr – ClearView Brush or Equivalent

ClearView Brush combines the above listed active ingredients (from Clearview) with triclopyr (from Garlon), which results in broad spectrum control of hard to control woody species, shrubs, and broadleaf and invasive species. This product is relatively new and represents the move to reduced risk chemistries that offer a safe profile for environment, wildlife, and adjacent vegetation when used as per the label. Classed as very low toxicity by WorkSafe BC and PMRA.

Chondrostereum purpureum – Chontrol or Equivalent

This product is a fungal organism that slows or stops the re-growth or suckering of targeted plants. It is best applied during September/October and provides best results in areas with a high concentration of alder and other deciduous woody species that it is labelled for. Classed as very low toxicity by WorkSafe BC and PMRA.

Clopyralid – Lontrel, Transline, or Equivalent

This herbicide is useful for spot-treatment control of broadleaf noxious weed species. It is preferred over picloram for the control of some noxious weeds such as Canada thistle, perennial sow-thistle, and scentless chamomile. It is effective only on actively growing plants in areas where high-residual herbicides should not be used. For perennial weeds, clopyralid will control the initial top growth and inhibit re-growth

during the season of application. Clopyralid is not used as a soil-applied residual herbicide and will not be used in areas of high rainfall. Classed as very low toxicity by WorkSafe BC and PMRA.

Diflufenzopyr and Dicamba – Distinct, Overdrive, or Equivalent

This herbicide is the first active ingredient from a chemical class called semicarbazones. Based on available data, diflufenzopyr has low toxicity to humans, birds, aquatic organisms, mammals, and bees. It has low residual properties. Diflufenzopyr causes hormones in plants to become concentrated in the growth regions. These products generally target broadleaved weeds.

Classed as slightly toxic by WorkSafe BC and PMRA.

Florpyrauxifen-benzyl – Rinskor active

Rinskor active is a new formulation that is currently being evaluated by Health Canada for registration in Canada. The active ingredient is from a new class of synthetic auxin herbicides. This product has a broad spectrum of activity on grasses and broadleaf weeds and has a very favourable environmental and toxicological profile. Classed as very low toxicity by WorkSafe BC and PMRA. Note: this product will not be used until PMRA registration is granted.

Glyphosate –Vantage, Vision, or Equivalent

This herbicide is effective for controlling re-sprouts of most deciduous tree species. It is applied to the cut stump surface of the woody vegetation immediately after brushing or injected/squirted into the cut frill of a tree as a liquid formulation. It can also be used in a broadcast application. Glyphosate is non-selective and has no or very little residual activity in the soil. It binds tightly to all types of soils independent of the levels of organic matter, silt, clay, and soil pH. Classed as very low toxicity by WorkSafe BC and PMRA.

Imazapyr – Arsenal Powerline or Equivalent

This herbicide is used to control brush species, most broadleaf weeds and annual and perennial grasses. It is applied as a low volume foliar or cut stump application. This herbicide is translocated throughout the plant and plant growth stops almost immediately after application. It is moderately residual and can

usually provide season-long control on many perennial plants. Classed as very low toxicity by WorkSafe BC and PMRA.

Metsulfuron-methyl – Escort or Equivalent

The active ingredient (metsulfuron-methyl) is used as a selective herbicide to control various species of broadleaf weeds, trees, and brush and some annual grasses. It stops cell division in the shoots and roots of the plant, causing plants to die. It is applied pre-and post-emergence (before and after growth begins).

The herbicide has very low toxicity to humans and animals. Best results are obtained when this product is applied to actively growing weeds during late spring to autumn. Classed as very low toxicity by WorkSafe BC and PMRA.

Picloram and 2,4-D – Aspect or Equivalent

The combination of picloram and 2,4-D results in the targeted control of woody plants as well as broadleaf weeds, while still being safe for grasses. Picloram is a selective, residual herbicide that can remain in the soil for several years providing long-term control against susceptible broadleaf invasive plants. Since picloram may persist in the soil, care is taken to avoid applying this herbicide to areas where soil may be moved or where there are shallow aquifers or domestic water intakes and wells. Classed as very low toxicity by WorkSafe BC and PMRA.

Triclopyr – Garlon Products or Equivalent

The active ingredient triclopyr is effective for control of deciduous trees and brush. It provides an effective alternative to glyphosate for control of certain tree species, such as aspen poplar and trembling aspen. Triclopyr is a selective herbicide, has very little soil residual activity, and rapidly degrades in soil microorganisms and sunlight. It generally takes 10-46 days to break down in soil depending on soil type, moisture, and temperature. Although the herbicide does not bind to soil as tightly as glyphosate, once triclopyr moves into the soil, there is generally little movement. The herbicide tends to stay in the upper 30 cm of the surface soil layers following rainfall where it undergoes degradation. Garlon products can be applied as cut stump, basal, or foliar applications. Classed as very low toxicity by WorkSafe BC and PMRA.

2,4,D – LV 700 or Equivalent

2,4-D compounds are hormone mimic chemicals that are selective depending upon rate and species. It is formulated to rapidly penetrate the waxy covering of plants. The most common application is foliar, and for best results should be applied when plants have rapid growth, likely May/June and September. 2,4-D herbicides have a short soil persistence period. Products with LD50 of >1000 are classed as slightly toxic by WorkSafeBC and PMRA.

Note: all products listed are valid and registered through Health Canada <https://pr-rp.hc-sc.gc.ca/lr-re/index-eng.php> as of the IPMP development date.