



Rights-of-Way Pest Management Plan

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1.0 Introduction

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 service to customers within the City of Nelson and to the above surrounding communities.

1.2 Pest Management Plans

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

- 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 or chemical or other material that is used to prevent, destroy, repel, or mitigate a pest.

The British Columbia *IPMA* and the Integrated Pest Management Regulations (IPMR) requires that management of vegetation on rights-of-way, including transmission corridors, distribution networks and access roads be approved under a single, comprehensive Pest Management Plan (PMP). Compliance with environmental legislation is a duty that **Nelson Hydro** takes seriously.

This PMP covers the **Nelson Hydro** vegetation management program on rights-of-way, including transmission corridors, distribution networks and their access roads. These areas may be used to also house utility infrastructure such as poles, power lines and facilities such as substations, switching stations, generation stations, pole yards, and buildings and structures.

The PMP 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,
- Public awareness of the **Nelson Hydro** vegetation management program on their rights-of-way, including transmission corridors, distribution networks and their access roads.

1.3 Geographic Boundaries of the Area to Which This Plan Applies [IPMR Section 58(1)(a)]

This PMP covers the **Nelson Hydro** vegetation management program on rights-of-way, including 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 map describing the geographic boundaries of the area to which this PMP will apply is shown in Appendix 1.

1.4 Person Responsible for Managing Pest [IPMR Section 58(1)(b)(c)]

Within the **Nelson Hydro**, the person responsible for the management of vegetation on rights-of-way, including transmission corridors, distribution networks and their access roads, and who will be the principal contact for information relating to this pest management plan will be Doug Pickard, Line Manager, **Nelson Hydro**. Mr. Pickard can be contacted at (250) 551-8287, or at: DPickard@nelson.ca

1.5 Role and Term of This PMP

This plan permits **Nelson Hydro** to utilize pesticides, in certain situations, when carrying out vegetation management on rights-of-way, including transmission corridors, distribution networks and access roads throughout within their service area. The plan shall be in force for a five-year period from the date that Confirmation of a Pesticide Use Notice has been obtained.

The use of this PMP will ensure:

- Legal accountability with the provisions of the *IPMA* and IPMR, as well as all applicable federal, provincial and regional laws and regulations;
- The responsible use of pesticides for vegetation management;
- The incorporation and use of the IPM;
- Public awareness of, and input into, the vegetation management program; and,
- That the effective use on an IPM program takes into account environmentally sensitive areas and land uses.

2.0 Objectives of Right-of-Way (ROW) Vegetation Management

Nelson Hydro needs to control tall-growing vegetation because of a zero tolerance policy for outages caused by trees growing into transmission or 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 falling onto the lines, and to comply with provisions of the *BC Weed Control Act* that requires occupiers of land to control noxious weeds.

The specific goals of vegetation management on the **Nelson Hydro** rights-of-way, including transmission corridors, distribution networks and their access roads, are to:

- Minimize public and worker safety hazards;
- Reduce the number of outages due to vegetation sources (e.g., outages caused by hazard and danger trees falling onto the lines);
- Reduce the risk of fires caused by trees contacting the lines;
- Allow access and lines of sight for maintenance; and,
- Comply with provisions of the *BC Weed Control Act* that requires occupiers of land to control noxious weeds.

The program also 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* with respect to maintaining right-of-ways located within 300 meters of forested land or grassland areas in a manner that prevents any fire from spreading;
- Selectively control only undesirable (target) species; and,
- Enhance biodiversity.

3.0 Right-of-Way Vegetation Management Using Integrated Pest Management (IPM) Principles

In order to ensure effective vegetation management, **Nelson Hydro** has adopted the principles of IPM into 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 pest management strategies.

Each of the above IPM elements form an integral part of the **Nelson Hydro** vegetation management program on rights-of-way, including transmission corridors, distribution networks and their access roads.

3.1 Prevention (Planning) [IPMR Section 58(2)(a)]

Preventative measures, such as regular vegetation management cycles, hazard tree identification and shared planning, are aimed at stopping the initial growth and spread of unwanted vegetation, and are an integral part of an IPM program.

Under its prevention program, **Nelson Hydro** conducts regular patrols on all of its transmission rights-of-way and on its distribution corridors. Information such as hazard tree identification, vegetation management requirements, clearances and anticipated cycle times is gathered during these patrols. From this information **Nelson Hydro** is able to establish regular vegetation management cycles and hazard tree removal schedules. Growth rates and minimum acceptable clearances at the end of each cycle are obtained to ensure a balanced plan. Either qualified power line technicians, certified utility arborists, or forestry technicians with specialization in hazard tree identification conduct all inspections under this PMP.

Using the results of inspection information and available information on average growth rates for the various species of trees in each area, a plan is designed so that each area is managed on an

appropriate and regular cycle. 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)]

The accurate identification of unwanted vegetation is important for several reasons:

- Depending on their growth rates and characteristics and on their physical location, they may become problem 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 a herbicide to the freshly cut stump to inhibit re-sprouting;
- Plants identified as noxious weeds would be considered as problem 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 as problem vegetation.

There are numerous publications that will assist in the identification of problem vegetation. The table below indicates the web sites where information on the identification and management of tree, shrub and weed species can be accessed:

Table 1: Web Sites for Identification of Problem Vegetation Species

Min. of Agriculture	“Field Guide to Noxious and Other Selected Weeds of British Columbia”	www.agf.gov.bc.ca/cropprot/weedguid/weedguid.htm
Min. FLNRO	Tree Identification	www.for.gov.bc.ca/hfd/library/documents/treebook/index.htm
E-Flora BC	Electronic Atlas of the plants of BC	www.eflora.bc.ca
WeedsBC	Weed Profiles	www.weedsbc.ca
Central Kootenay Invasive Plant Committee	List of invasive plant profiles covering the Central Kootenays	www.kootenayweeds.com/profiles.php
Invasive Species Council of BC	Fact Sheets on Invasive Plants	www.bcinvasives.ca

3.2.1 Types of Problem Vegetation on Right-of-Ways

ROW vegetation can be grouped into several broad categories according to their growth form. Categories include grasses, sedges, broadleaves (forbs), ferns, vines, and woody plants (brush, trees, shrubs).

With the exception of plants designated as noxious under the BC *Weed Control Act*, woody plants and vines are the only problem vegetation currently found on **Nelson Hydro** ROWs.

Table 2 Problem Vegetation and Their Characteristics

Problem Vegetation	Characteristics
<p style="text-align: center;">Vines</p>	<ul style="list-style-type: none"> • Can be either woody or herbaceous. • Often have persistent, woody stems. • Easily invade weed-free areas. • Can climb utility poles and signs, and can severely reduce access to structures. • Most vines either woody or herbaceous, but a few are annuals.
<p style="text-align: center;">Woody Plants: Brush, Trees & Shrubs</p>	<ul style="list-style-type: none"> • Perennials that reproduce by seed or from sprouting roots. • Brush and shrubs have several stems that grow to 3 meters in height. • Trees 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 re-sprout from cut areas. • For deciduous trees: a combination of mechanical methods followed by the selection 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, on a regular basis. Monitoring is generally carried out on foot or by vehicle, depending on the terrain. Monitoring normally 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 and 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. Monitoring is generally done visually, and documented in writing.

The results of monitoring from inspection/patrols are used to determine what action is required to minimize risks associated with the possibility of vegetation coming into contact with transmission and distribution lines. Nelson Hydro uses tree risk identification and evaluation processes to make decisions regarding what particular hazards may be associated with a particular tree or grouping of trees. The percentage weed cover is 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).

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

Table 3 Summary of the Nelson Hydro Monitoring Program

Monitoring Method	Monitoring Frequency	Data Collection
Ground Inspection/Patrol	At least once annually (Spring or Fall)	GPS, species, physical location, hazard rating*
Public/ Internal Reports	Upon receipt of report	Site specific work plan

* 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.

3.4 Treatment/Injury Thresholds and How Treatment Decisions Are Chosen and Applied [IPMR Section 58(2)(d)(i)]

With the exception of noxious weeds, the decision to initiate 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 in close proximity to energized conductors or equipment

3.4.1 Clearance Specifications

Initial Clearing/New Construction

The objective with respect to vegetation management is to remove all tall growing tree species from new rights-of-way, and remove any hazard or problem trees that are outside the right-of-way, prior to construction. In all areas, the intent is to remove these tree species that can grow to heights that will allow them to make contact with energized conductors. In the case of deciduous species, herbicide treatment of the stump to reduce re-sprouting will also be employed, 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 re-growth 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. The required minimum clearances are illustrated in Tables 3 and 4:

Table 3 Initial Clearing/New Construction - Clearance to Distribution Lines (under 60 kV)

Overhead Clearance	No vegetation overhang is permitted
Side Clearance	<ul style="list-style-type: none"> • 6 meters from the conductor for 3-phase primary • 5 meters from the conductor for 1-phase primary • 3 meters from the conductor for secondary
Under Clearance	<p>Remove all undesirable tree species in the clearance zone. When removal is not possible, achieve a clearance that is the greater of:</p> <ul style="list-style-type: none"> • 3 meters from the neutral conductor, OR • 1.2 meters from joint use contacts

Table 4 Clearance to Transmission Lines (60 kV and over)

Overhead Clearance	No vegetation overhang is permitted
Side Clearance from Statutory Right-of-Way (SRW) Centerline	<p><u>Optimum</u> No trees capable of falling on lines (all voltages) Statutory Right-of-Way (SRW) 60 kV – 16 meters 170 kV – 19 meters 230 kV – 32 meters</p> <p><u>Minimum</u> 60 kV – 5 meters 138 kV – 7 meters 170 kV – 10 meters 230 kV – 12 meters</p>

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 Tables 5 and 6:

Table 5 Clearance to Distribution Lines (Under 60 kV) for Radial Circuits to Mountain Repeaters

Overhead Clearance	No vegetation overhang is permitted
Side Clearance	5 meters

Table 6 Clearance to Distribution Lines (Under 60 kV) for Existing Constructions

Overhead Clearance	3 meters from the conductor
Side Clearance	3 meters from the conductor for 3 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: <ul style="list-style-type: none"> • 3 meters from the neutral conductor, OR • 1.2 meters from joint use contacts

Note: The exception to the above clearance requirements is that mature conifers that have 1.5 meters of side clearance will not require pruning. If pruning is required, a minimum distance of 3 meters must be obtained.

Limits of Approach

Nelson Hydro has established Limits of Approach that specify how close work can take place given certain voltages and to 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 7. All unqualified personnel working near **Nelson Hydro** must stay outside the designated limits of approach.

Table 7 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	(meters)	(meters)	(meters)
750v to 20 kV	0.3	0.9	3
Over 20 kV to 30 kV	0.45	1.2	3
Over 30 kV to 75 kV	0.9	1.5	3
Over 75 kV to 250 kV	2.1	3	4.5
Over 250 kV to 325 kV	2.6	4.5	<u>6</u>
Over 325 kV to 550 kV	3.7	6	<u>6</u>

Note: Any uncertified Utility Arborists working near **Nelson Hydro** facilities must stay outside the 3 meter limit of approach.

3.5 Treatment Methods/Options [IPMR Section 58(2)e]

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

Selection of a particular technique will depend on:

- How required clearance specifications can be achieved;
- Adjacent land use (public or private);
- Proximity of water sources, bodies of water, and other environmentally sensitive features;
- The possibility of adverse impacts to wildlife, fish, 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;
- Site accessibility; and,
- The consequences of not treating.

General site conditions and environmental sensitivities that were assessed during regular inspections or during patrols (i.e., monitoring), will again be assessed immediately prior to control measures being implemented.

The IPM techniques proposed for use under this PMP include

- Physical controls;
- Cultural controls;
- Biological controls; and,
- Chemical control (pesticides).

Physical controls will be primarily considered in the selection process to manage problem vegetation. Pesticides may be considered for use where physical methods, cultural methods and biological methods alone are not providing effective management of the problem vegetation. The targeted purpose for each pesticide approved for use under this PMP will be discussed in detail later in this section. During all pesticide use, disturbance to low growing vegetation will be minimized when controlling when controlling problem vegetation by selective applications.

3.5.1 Non-Chemical Treatment Options [IPMR Section 58(2)(e)]

3.5.1.1 Physical Treatment Methods

Physical controls may include brushing (selective slashing), mowing, frilling (girdling), grooming, and pruning. Table 8 provides a description and rationale and the benefits and limitations of each of these physical treatment methods.

Table 8 Description and Rationale, Benefits and Limitations of Physical Treatment Methods

Description & Rationale	Benefits/Limitations
<p>Brushing (selective slashing) Brushing involves the use of 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.</p>	<p>Brushing is also preferable to other methods in areas that have a well-established, low-growing compatible plant community, as it can be used to selectively control the taller, problem vegetation. Brushing may also be used for the removal of hazard trees from the perimeter of a ROW. A hazard tree is defined as a tree that is in imminent danger of falling onto the right-of-way (and limiting access for maintenance, repair, emergencies, and the conducting of 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 a particularly useful method 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 is located in areas of steep terrain. Brushing taller vegetation generally results in an excessive amount of debris that could become an increased 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.</p>
<p>Mowing is conducted with track-mounted or wheel heavy-duty flail or rotary cutters that are driven over the ROW for the cutting of problem vegetation.</p>	<p>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 that are located within 300 meters of forested land or grassland areas for preventing any fire from spreading (<i>BC Wildfire Regulation</i>). Mowing is generally not suitable for use in areas that are rocky, have stumps, or that are on slopes or boggy areas, due to restricted access or worker safety considerations. Mowing is not suitable for use in riparian areas or in 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.</p>

<p>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 slowly die.</p>	<p>This technique is effective in killing the tree roots, but has no effect on the above ground parts. The technique, which is very labour intensive, is useful 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 the control of danger trees and problem trees on the perimeters of the ROW.</p>
<p>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 both a control method, and to prepare a ROW for alternative uses such as grazing or other agricultural uses.</p>	<p>The main benefit of grooming is the replacement of problem vegetation with a compatible ROW use that will result in reduced future maintenance requirements and costs. The soil conditions needed to establish viable agricultural uses following grooming are only present in certain 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 species or root-suckering species, and may require follow-up herbicide applications.</p>
<p>Pruning is useful for the selective removal of limbs and branches from large native trees growing on the ROW.</p>	<p>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 at regular intervals, it is costlier and more labour intensive than other manual/mechanical methods. Knowledge and experience of proper arboricultural techniques are need for successful pruning. Improper pruning can cause tree damage and can result in unsightly, unhealthy and hazardous trees that may require further remedial action.</p>

3.5.1.2 Cultural Treatment Methods

Cultural controls involve:

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

Application of the above cultural control methods may help reduce the need for long-term control of problem vegetation. Table 9 provides a description and rationale and the benefits and limitations of these cultural treatment methods.

Table 9 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 of 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 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.	Planting and maintaining trees at sites close to distribution lines will be encouraged, provided that the tree is appropriate to the location. This is mainly based on the height of the mature tree, and the distance to the distribution line.
Tree Growth Regulators/Inhibitors will be investigated for possible use on both ROWs and on adjacent land	There are currently no tree growth regulators/inhibitors products registered for use in Canada on utility corridors. Once available, Nelson Hydro may include these products into this PMP where practical and feasible. Potential sites may be distribution lines adjacent to municipal boulevards where limiting growth may result in saving aesthetically appealing trees from excessive pruning.

3.5.1.3 Bio-Control Treatment Methods

Biological control techniques utilize agents such as fungi or insects that specifically target problem weed species. The only 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 10 provides a description and rationale and the benefits and limitations of Chontrol Paste ®.

Table 10 Description and Rationale, Benefits and Limitations of Using Chontrol Paste ®

Description & Rationale	Benefits/Limitations
Chontrol Paste ® is a registered biological control alternative to the use of the pesticide active ingredients glyphosate and triclopyr to control re-sprouting of red and sitka alder 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 for using 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., 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 the use of this biological control agent.

3.5.2 Chemical Treatment Methods [IPMR Section 58(2)(e)]

3.5.2.1 The Reason for Pesticide Use

Although a main objective of this PMP is to minimize the use of pesticides for control of problem vegetation where viable alternatives exist, pesticides are an important tool in ROW vegetation management.

The selective and limited use of pesticides is an important 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 used 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. Typically, when a single stem is cut, multiple stems can grow from the severed stump or the 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 result in an increasing density of tall growing species.

Depending on the species, the number of shoots/re-sprouts per stem can increase by up to 100 times, with re-growth normally averaging 1.5 to 3.0 meters per year following manual/mechanical treatments. Within this PMP, with the exception of complying with provisions of the BC *Weed Control Act* that requires occupiers of land to control noxious weeds, pesticides 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, however, remain important 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 access by mowers and can be dangerous for a chain saw operator. Exceedingly dense brush can create both a visibility and a physical hazard to workers and can result in an increased incidence

of injuries due to slipping and tripping while operating power equipment. Mechanical methods are non-selective, and can also 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 are used to remove most of the vegetation from a site. Studies have shown that there are worker health risks arising from exposure to power saw exhaust during brushing activities. The exhaust of a brush saw or a chain saw has been shown to contain many toxic compounds, including potent mutagens, carcinogens, irritants and central nervous system depressants. Studies indicate that work done in deep bush and quiet air can result in exhaust concentrations that may impair worker health. There are also the unknown effects of power saw exhaust on the environment. From an economic viewpoint, mechanical methods have been shown to cost, on the average, four times more per hectare than control of the same vegetation using pesticides.

Pesticide use has not been shown to impair applicator health provided that personal protective measures and equipment, as indicated on product labels, are adhered to. 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.

3.5.2.2 Pesticide Identification, Application Equipment, and Application Methods

The pesticide active ingredients proposed for use under this PMP are **dicamba**, **glyphosate** and **triclopyr**.

3.5.3 Pesticide Application Equipment

Application equipment proposed for use in applying pesticides under this PMP includes:

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 drift. It is particularly useful for spraying small areas or individual trees and plants (e.g., noxious weed species). Within this PMP, backpack sprayers may be used for the foliar application of all the active ingredients for vegetation management, for the application of the active ingredients glyphosate and triclopyr to cut surfaces (i.e. stumps) following physical controls, and for the selective control of noxious weeds.

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

the application to cut surfaces (i.e. stumps) following physical controls, and for the control of noxious weeds and invasive plants

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 PMP, handguns may be used for the foliar application of all the active ingredients for vegetation management, and for the selective control of noxious weeds and invasive plants.

Squirt Bottle is a hand-held, non-pressurized container, used to apply the pesticide active ingredients glyphosate and triclopyr to the cut surface of deciduous stumps to inhibit re-sprouting following physical control methods.

Injection Tools is where the pesticide active ingredients glyphosate and triclopyr are injected into individual deciduous stems to inhibit re-sprouting following physical control methods.

3.5.4 Pesticide Application Methods/Techniques

Pesticide application methods/techniques proposed for use under this PMP include foliar, wick/wipe-on, and cut surface applications.

A description, rationale for use, and the benefits and limitations of each of application methods/techniques, is shown in Table 11.

Table 11 Description and Rationale for Use, Benefits and Limitations of Pesticide Application Methods/Techniques

Description & Rationale	Benefits/Limitations
<p>Foliar applications involve use of a manually operated pressurized backpack sprayer or a handgun, and can be used to apply all of the active ingredients. This method/technique is most effective when the target vegetation is actively growing.</p>	<p>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 being applied (e.g., glyphosate), they will control both the target vegetation and desirable plants that are growing among them.</p>
<p>Wick-Wipe-on applications involve the use of 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.</p>	<p>This application technique virtually eliminates drift, and is useful for the safe and effective treatment of individual plans or stems located in areas of desirable vegetation. This technique is labour intensive, however, and is only practical to use for small treatment areas or for a small number of individual plants.</p>
<p>Cut Surface applications will be used in conjunction with manual treatments for controlling deciduous vegetation. With this method/technique, the problem vegetation is cut as low to the ground as possible and pesticide 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.</p>	<p>This method/technique is preferable in highly visible areas or in areas where standing dead trees do not meet treatment objectives. Because pesticide application is restricted to the cut surface of freshly cut stumps, there is generally no pesticide 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 pesticide exposure to workers or the general public. If treatment is not undertaken immediately following physical control, this technique may not be successful.</p>

3.6 Treatment Selection Criteria [IPMR Section 58(2)(e)(iv)]

IPM involves a decision-making process that looks at the various treatment options that are available 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 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, remote areas);
- Safety issues (the public, **Nelson Hydro** personnel and contractors), including fire risk;
- Objectives of the vegetation management;
- Consequences of not taking 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 method;
- Cost effectiveness of each method;
- Environmental considerations (proximity to water sources, bodies of water, food growing or planted for human consumption, riparian areas, wildlife and fish habitat); and,
- For pesticide treatments, the choice of pesticide, application methods/techniques and application equipment.

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 the use of a pesticide, the most effective control will be achieved if the pesticide is applied to the correct growth stage of the weed.

3.7 Post-Treatment Evaluations [IPMR Section 58(2)f]

All applications of pesticides for the management of problem vegetation under this PMP will be undertaken by contracts issued to qualified companies in possession of a valid BC Pesticide User Licence. All pesticide applications will be made by certified pesticide applicators in the appropriate category of certification or supervised by certified pesticide applicators in the appropriate category of certification.

During their regular operations and maintenance site visits, **Nelson Hydro** staff will monitor the effectiveness of vegetation management treatments undertaken by each contractor.

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

- Compliance with the commitments made in this PMP;

- Compliance with the *Integrated Pest Management Act and Regulations*;
- That 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 negative environmental impacts have occurred; and,
- If corrective action is required.

Inspections will be undertaken on the ground, and will generally be based on visual evaluations. Evaluations may include both qualitative and quantitative determinations of mortality to the targeted problem vegetation, as well documentation of any non-target mortality that is evident. Effectiveness of the treatments will be determined by comparing pre-treatment and post-treatment vegetation (by percentage of surface area).

4.0 Environmental Protection Strategies and Procedures

All pest management activities undertaken under this PMP (both chemical and non-chemical) to manage problem vegetation, including hazard trees, and noxious weeds on the rights-of-way, including transmission corridors, distribution networks and their access roads incorporate measures designed to protect the natural environment including:

- 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, riparian areas, bodies of water and wildlife habitat;
- Strategies to prevent pesticide contamination of food intended for human consumption;
- Pre-treatment inspection procedures for identifying treatment area boundaries;
- 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 treatment period.

In this PMP, all no treatment zones (NTZ) will comply with the standards contained in Division 7 of the IPMR.

4.1 Strategies to Protect Community Watersheds

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

Prior to 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 or local governments;
- Pesticides will not be stored within a community watershed for more than 24 hours prior to their use, and 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 breakdown 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,
- Prior to the use of pesticides, community watershed maps will be consulted to determine if proposed treatments are within a community watershed or are within 100 meters upslope of any water intake, or 30 meters down slope of any water intake.

4.2 Strategies to Protect Domestic and Agricultural Wells and Water Intakes, Bodies of Water and Streams

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

Nelson Hydro shall ensure that, prior to pesticide use, strategies are developed and implemented that identify and protect domestic and agricultural wells and water intakes, bodies of water and streams. In order to protect domestic and agricultural water source and bodies of water during pesticide use, **Nelson Hydro** and their contractors shall maintain the no treatment zones (NTZ) and pesticide free zones (PFZ) shown in Table 6.

Table 12 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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

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, 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, 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 a licensed waterworks.

Wetland – a swamp, marsh, bog, or other similar area that supports natural vegetation, and which is distinct from adjacent upland

4.3 Strategies to Protect Fish and Wildlife, Riparian Areas, Wildlife Habitat, and Species at Risk [IPMR Section 58(3)(b)(ii)]

Problem vegetation, including hazard trees and noxious weed species on the rights-of-way, including transmission corridors, distribution networks and their access roads are generally not located in areas that are in close proximity to fish and wildlife, riparian areas, wildlife habitat and species at risk. However, if observed during monitoring, **Nelson Hydro** and their contractors shall implement the following strategies to protect fish and wildlife, riparian areas, wildlife habitat and species at risk prior to control methods (chemical and non-chemical) being implemented under this PMP:

- Maintain a minimum 15 m NTZ around riparian areas and wildlife habitat;
- Establish and mark/flag the boundaries of any required PFZ and NTZ prior to control measures being implemented;
- Undertake all pesticide applications in a manner that 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, fueling and refilling of equipment will not be undertaken within 15 meters of an NTZ;
- Establish and maintain 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 have an impact on desirable vegetation and wildlife.

4.4 Strategies to Prevent Contamination of Food for Human Consumption [IPMR Section 58(3)(b)(iii)]

Nelson Hydro rights-of-way, including transmission corridors, distribution networks and their access roads, are occasionally located near environmentally sensitive areas such as lawns, vegetable gardens, berry picking and bee keeping areas, and areas 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 that may be targeted for control, the following strategies shall be implemented for their protection:

- Non-chemical methods of 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;
- 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 treated with pesticides; and,
- Where possible, pesticide treatments shall be conducted at times to minimize impact on food plants.

The onus is on organic farmers to ensure that there is an adequate buffer zone between their farm and **Nelson Hydro** facilities.

4.5 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 to establish treatment area boundaries. During this inspection, the location of environmentally sensitive areas shall be located and mapped. A pre-treatment meeting/discussion shall be held, and 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

4.6 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. As a minimum, all backpack sprayers and handguns (power hose and nozzle) shall be calibrated once per year prior to use, and at regular intervals throughout the season. Sprayers shall be re-calibrated when changing pesticide products or when nozzle output begins to vary. The frequency of sprayer calibration shall be dictated by factors such as formulation of pesticides used.

4.7 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.

Pesticide 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.

4.8 Posting of Treatment Notices

Prior to 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 the pesticide use;
- Precautions to be taken to prevent harm to people entering the treatment area;
- The PMP confirmation number;
- Contact information for **Nelson Hydro** to obtain information about the pesticide or pesticide use: and,
- For each treatment location, the applicator will maintain a record of where the Treatment Notices were posted.

5.0 Operational Information

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.

5.1 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 PMP. Any individual or company (1.e., a contractor) that provides a service to **Nelson Hydro** by applying commercial or industrial pesticides must have a valid BC Pesticide User Licence.

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 4 uncertified assistants at one time;
- Maintain continuous contact, auditory and/or visual, with the uncertified assistants;
- Be within 500 meters of persons being supervised; and,
- Comply with the standards contained in Division 7 of the IPMR.

5.2 Procedures for Safely Transporting Pesticides

Personnel shall follow these procedures for safely transporting pesticides:

- Limit the amount of pesticides that will be carried in any one vehicle. The quantity shall be no more than what is necessary for each project, except where transportation occurs between storage facilities;
- Ensure that pesticides are carried in a compartment that is secured 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 prior to transporting. Keep pesticides in their original containers and with original labels. If original labels are not available, the wood pesticides shall be placed in appropriate containers that have 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 kit, and that the vehicle operator has been trained on how to handle spills;
- 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 Material Safety Data Sheet (MSDS) for all pesticides being transported.

5.3 Procedures for Safely Storing Pesticides

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 not available, the pesticides shall be placed in appropriate containers that have the trade name, active ingredient concentration and pesticide registration number affixed to the outside of the 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.

5.4 Procedures for Safely Mixing, Loading and Applying Pesticides

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

- Ensure that all mixing, loading and application of pesticides is carried out by Certified Pesticide Applicators, and that all manufacturer's 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. All mixing and loading shall be undertaken only in areas at least 15 meters from, and selected to prevent, any spilled pesticides from entering pesticide-free zones, no treatment zones, bodies of water, fish or wildlife habitat, water sources, or 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 products' MSDS, emergency telephone numbers and first aid supplies are present and available at or near the treatment site; and
- To follow all directions and restrictions on pesticide labels, including adhering to the recommended re-entry times to treated areas unless personal protective equipment is worn.

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

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

- Ensure that all pesticides 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 that empty pesticide containers are returned to the distributor as part of their recycling program; or triple rinsed or pressure rinsed, altered so that they cannot be reused, and disposed of in a permitted sanitary landfill or other approved disposal site; and
- Ensure that all leftover pesticides are stored for future use in a manner consistent with the requirements specified in Section 5.3 above.

5.6 Procedures for Responding to Pesticide Spills

Personnel shall follow these procedures for responding to pesticide spills. If contractors that work under this PMP have their own spill response plan, they must meet or exceed the following plan:

- Spill treatment equipment shall be present or near storage (including mobile storage), mixing and loading sites and shall include: 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;
- The absorbent material shall be collected in garbage bags or containers with contents clearly marked;
- 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;
- When more than 5 liters or 5 kg of 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; and,
- An approved representative of the **Nelson Hydro** shall be notified of the details related to the spill as soon as practical by the Contractor project supervisor.

6.0 Reporting, Notification and Consultation

6.1 Reporting

Accurate record keeping allow **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 PMP, and the contents of the Pesticide Use Notice. **Nelson Hydro** will ensure that each of the required records described below are maintained.

6.11 Confirmation Holder Use Records

Each contracting firm that applies pesticides for **Nelson Hydro** must maintain daily records of pesticide use.

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

- The date and time of the pesticide use;
- The name of the pest targeted by the use or the purpose of the pesticide use;
- The trade name of each pesticide used and its registration number under the federal Act;
- For each pesticide used, the method and rate of application and the total quantity used;
- For the pesticide active ingredients that are applied as a spray, the prevailing meteorological conditions including temperature, precipitation and velocity and direction of the wind. These conditions should be measured at the beginning of each day before starting treatment, re-measured if obvious changes in environmental conditions occur throughout the day, and re-measured at the end of any treatment day; and,
- A record for each piece of the holder's pesticide application equipment that requires calibration showing when the equipment was calibrated and the data upon which its calibration was based.

6.1.2 Annual Summary of Use Report for Confirmation Holders

In accordance with Section 39 of the IPMR, **Nelson Hydro** will provide to the Regional Administrator, *IPMA*, the following information for each calendar year by January 31 in the next calendar year for operations conducted under this PMP during the calendar year:

- 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 of their use.

6.2 Notifications

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

6.2.1 Notification of PMP 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 PMP 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 MOE, at least 21 days prior to treatment in each year during which the PMP 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 the purpose of an annual Notice of Intent to Treat (NIT), **Nelson Hydro** will prepare and retain a map and/or diagram showing the treatment locations for the applicable calendar year, which indicate the following for each treatment location:

- The proposed treatment areas; and

- The geographic features that require a pesticide-free zone or a no-treatment zone.

6.2.3 Requests to Amend the PMP

Nelson Hydro will forward, in writing, to the Ministry of Environment, amendments requested for the PMP. Amendment requests to add new application techniques or similar changes will not require further consultation, provided that 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.

6.2.4 Public Notification Prior to Treatment

Notification of individuals, communities and organizations in the time and manner if agreed 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 non-pesticidal 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 Ministry of Environment for PMP confirmation, **Nelson Hydro** will carry out a public consultation process. The objectives of conducting public consultations when this PMP is at the draft stage are:

- To increase public awareness of the PMP process and of the principles of IPM which are embodied in the PMP;
- To ensure that the public have an opportunity to identify concerns, and for **Nelson Hydro** to address those concerns, before the PMP is finalized and submitted and a Pesticide Use Notice submitted for confirmation;
- To ensure a transparent and accountable review process for the PMP;

- 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 that is described in the PMP recognizes the need to protect human health and the environment.

The public will be consulted of the PMP development via notices in local community newspapers that have circulation within the geographic boundaries of the PMP area. As per Section 61(1) of the IPMR, at least 45 days before submitting a Pesticide Use Notice, the first of 2 notices, at least 40 cm² in size, will be published within a 2 week period in newspapers circulated in the various communities (or nearest communities).

During the public consultation process, the draft PMP 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 PMP submission appeared, along with the publication dates and a photocopy or tear sheet of a representative advertisement.

6.3.3 First Nations Consultation

In addition to the objectives for public consultation outlined in Section 6.3.1, **Nelson Hydro** will consult with First Nations to avoid infringement on aboriginal rights, treaty rights, or cultural values during the vegetation management program.

Nelson Hydro not only has an obligation to consult with First Nations, it must also attempt to address their concerns and accommodate their cultural interests. Consultation processes must take into account the BC Treaty negotiation process, and current litigation actions by First Nations respecting aboriginal land use or sovereignty. Both of these major issues can have an impact on the **Nelson Hydro** vegetation management program.

In light of the above sensitivities and special concerns, **Nelson Hydro** is committed to establishing and maintaining positive relationships with First Nations through meaningful and respectful consultation.

6.3.4 First Nations Consultation Report

In order to facilitate Ministry consideration of the adequacy of First Nations consultations and of the **Nelson Hydro** response to any issues raised, **Nelson Hydro** will prepare a report that describes the consultation process and outcomes. This report will be submitted to the Administrator, *IPMA*, in conjunction with the submission of the Pesticide Use Notice application.

