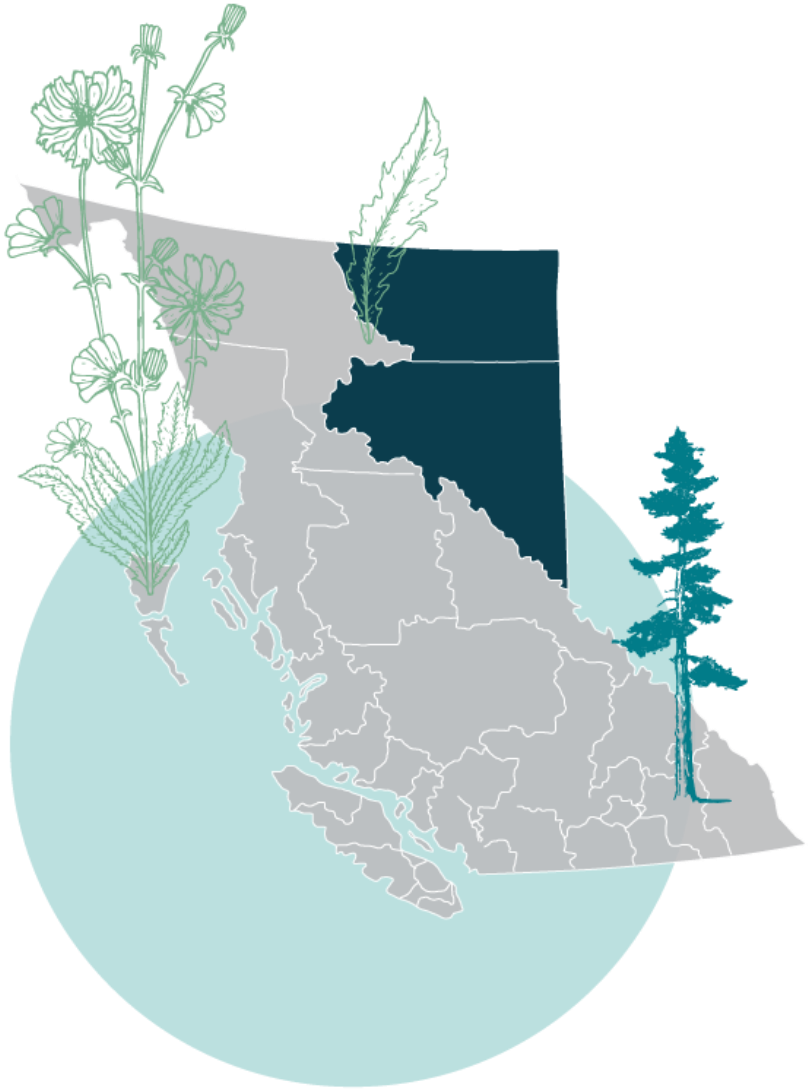
Orphan Site Pesticide Management Plan

for the Peace River Regional District and Northern Rockies Regional Municipality



BCER
BRITISH COLUMBIA ENERGY REGULATOR

Reference #:
BCER OSRF PMP 2024-2029

Executive Summary

This Pest Management Plan (PMP) outlines the BCER's comprehensive vegetation management strategy for Orphan sites within British Columbia's Peace River and Northern Rockies Regional Districts.

Emphasizing safety, environmental stewardship, and regulatory compliance, the plan employs an integrated vegetation management approach. The BCER employs a combination of cultural, biological, chemical, and mechanical methods to effectively manage vegetation, in alignment with the Integrated Pest Management Act, thereby minimizing health and environmental risks.

Detailed within the PMP are strategies for mitigating unwanted vegetation; encompassing site assessments, threshold establishment, method selection for control, herbicide application protocols, and contractor oversight.

Collaboration with Indigenous and local communities, landowners, stakeholders, and industry is integral to the success of BCER's invasive weed program. The potential threats posed by invasive and undesirable vegetation to human health, ecosystems, and economic vitality necessitate concerted efforts in prevention and control. Regulatory frameworks, such as the Weed Control Act and BC Integrated Pest Management Act, underpin the PMP's efficacy.

Ultimately, the PMP's overarching goal is to safeguard native species, preserve plant communities, and protect critical wildlife habitats, thereby contributing to the ecological integrity and socio-economic well-being of Northeast BC.

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1.0 About the British Columbia Energy Regulator

The British Columbia Energy Regulator (BCER) oversees the full life cycle of energy resource activities in B.C., from site planning to restoration. The BCER ensures activities are undertaken in a manner that protects public safety and the environment, supports reconciliation with Indigenous peoples, conserves energy resources and fosters a sound economy and social well-being. We work collaboratively across government and industry sharing policy and technical expertise in support of B.C.'s transition to low-carbon energy and helping meet future global energy needs.

Vision, Mission and Values

Vision

A resilient energy future where B.C.'s energy resource activities are safe, environmentally leading and socially responsible.

Mission

We regulate the life cycle of energy resource activities in B.C., from site planning to restoration, ensuring activities are undertaken in a manner that:

Protects public safety and the environment

Supports reconciliation with Indigenous peoples and the transition to low-carbon energy

Conserves energy resources

Fosters a sound economy and social well-being

Values

Respect is our commitment to listen, accept and value diverse perspectives.

Integrity is our commitment to the principles of fairness, trust and accountability.

Transparency is our commitment to be open and provide clear information on decisions, operations and actions.

Innovation is our commitment to learn, adapt, act and grow.

Responsiveness is our commitment to listening and timely and meaningful action.

2.0 About the Orphan Site Reclamation Fund

In cases where an oil and gas company is deemed insolvent or cannot be located, the BCER may designate sites as orphans. This authority comes from Section 45 of the *Energy Resources Activities Act* and allows the process of site restoration to continue. Once declared an orphan site, the BCER may use the industry funded Orphan Site Reclamation Fund (OSRF) to decommission and restore it.

The OSRF is an annual levy on industry permit holders used to pay the cost of restoring orphan sites (orphans, orphan sites, sites) in B.C., which includes well sites, pipelines, facility sites, risers, access roads, and other associated activities (borrow pits, remote sumps, laydown yards, log decks). The OSRF ensures the site will be restored in accordance with current legislation and regulations, including vegetation management and noxious weed control.

3.0 Introduction

The Integrated Pest Management Act (IPMA) requires that management of vegetation on specified industrial sites be approved under a single, comprehensive Pest Management Plan (PMP), which ensures:

- Compliance with the provisions of the IPMA, Integrated Pest Management Regulation (IPMR), and other applicable federal, provincial and regional laws and regulations;
- Indigenous, stakeholder, and public awareness of the BCER's vegetation management programs;
- Outlines a program for managing pest populations or reducing damage caused by pests, based on integrated pest management (IPM);
- The responsible use, handling, transporting, and storage of pesticides;
- Identifying and protecting environmentally sensitive areas and land uses;
- The incorporation and use of integrated pest management plan

Pesticide means a micro-organism or material that is represented, sold, used, or intended to be used to prevent, destroy, repel, or mitigate a pest, and includes:

- a plant growth regulator, plant defoliator or plant desiccant,
- a controlled product as defined in the Pest Control Products Act (Canada), and
- a substance that is classified as a pesticide by regulation

Pesticide use includes mixing, preparing, applying, and possessing for the purpose of applying. The terms pesticide and herbicide are used interchangeably throughout this PMP and refer to chemicals used to treat pests.

The scope of this PMP will be limited to ground-based applications only. Aerial transport may be used to access sites, however, all applications will be ground-based. The BCER, its contractors, and agents will use this PMP when carrying out vegetation management activities on Orphan sites in northeast BC.

3.1 Geographic Boundaries of the Plan Area [IPMR Section 58(1)(a)]

The geographic extent of this PMP is limited to the BCER controlled sites maintained through the OSRF in northeast BC. Appendix A of the PMP illustrates these geographic boundaries. An interactive map is also available on the Orphan sites homepage located at https://www.bc-er.ca/what-we-regulate/oil-gas/orphan-sites/

3.2 Term of the Pest Management Plan

The term of the plan is for 5 years (2024-2029) from the date the Pesticide Use Notice is confirmed by the BC Ministry of Environment.

3.3 Person Responsible for Managing Pests [IPMR Section 58(1)(b)(c)]

Within OSRF, the person responsible for managing pests and the principal contact for information relating to this PMP is:

Chad Moffat
BC Energy Regulator
6534 100th Ave.,
Fort St. John, BC, V1J 8C5
Email: orphanrestoration@bc-er.ca
Phone: 1-250-794-5200

4.0 Integrated Pest Management Principles and Purposes

Integrated Pest Management is a science-based, sustainable decision-making process that identifies risks from pests and their management related strategies. It coordinates environmental practices, the biology and life cycle of the pest, and available technology to minimize pest damage, while minimizing risk to people, the land, and the environment.

The purpose of this PMP is to describe vegetation management while incorporating the principles of IPM. Vegetation management is not limited to just noxious and/or nuisance vegetation, rather it includes any undesirable vegetation on a site including grasses, broadleaf plants, shrubs, and trees.

Restoration goals lead the BCER's need to control vegetation within and around Orphan sites. The goals include:

- Compliance with provisions of the BC Weed Control Act that requires occupiers of land to control noxious weeds;
- Improved restoration efforts to rehabilitate disturbed ecosystems;
- Reduce long-term program costs;
- Continue to consider alternative, non-chemical methods of invasive plant management while recognizing that herbicides may be required for management for a number of species;
- Ensure existing invasive plant populations are kept from expanding beyond a defined management area.

4.1 The Principles of Integrated Pest Management (IPM)

To ensure effective vegetation management at all of its sites, the BCER has adopted the principles of IPM. IPM means a process for managing pest populations that includes the following activities:

1) Planning (prevention) and managing ecosystems to prevent organisms from becoming pests;
2) Identifying high risk sites and identify high priority plants;
3) Developing treatment plan(s);
4) Monitoring efficacy to determine whether treatment thresholds were met (if not, repeat steps 3, 4, and 5)
5) Eliminating undesirable plant populations using appropriate biological, physical, cultural, mechanical, behavioural, and chemical controls combinations; and,
6) Evaluating the effectiveness of pest management strategies.

4.1.1 Planning and Prevention [IPMR Section 58(2)(a)]

Preventative measures aimed at stopping the initial growth and spread of unwanted vegetation are an integral part of an IPM program. In some instances, preventative measures may reduce the need for future maintenance using both pesticide and non-pesticide control methods.

The easiest and most effective method to prevent species invasion is preventing early establishment.

For plants which have been detected in a given area, the most effective method of control is to prevent the plants from establishing and spreading. This will be achieved by training staff and contractors who conduct site visits on what to look for and how to report findings. The reports will be used in tandem with an assessment process and response system to quickly implement the management before the species have a chance to establish.

For established plants, prevention of further spread can be accomplished by the promotion of healthy, weed resistant habitats. Disturbed areas such as those created by oil and gas development can cause vulnerability to invasive species; therefore, it is important to clean equipment and footwear to prevent the introduction and spread of invasive plant species to these vulnerable sites. When areas have been disturbed, prompt seeding will help to re-establish healthy, weed resistant plant populations.

The following land management options will be implemented when feasible and applicable:

- prior to use to prevent the movement of soils contaminated with invasive plant seed and vegetative plant propagule.
- Educate onsite employees and contractors on work practices which will reduce the spreading of invasive plant seeds and plant parts
- Prior to leaving areas with invasive plants - inspect vehicles, equipment and clothing and remove (by cleaning or washing) plant seeds or plant parts
- Keep equipment out of infested areas
- When possible, proactively re-vegetate disturbed areas by encouraging rapid native plant succession, artificially seeding and fertilizing, or a combination thereof

4.1.2 Pest Identification [IPMR Section 58(2)(b)]

Unwanted vegetation growing within or adjacent to Orphan sites will be termed “weeds” within this PMP. Weeds are a term used to describe vegetation growing where it is not desired (i.e., interfering with human and wildlife activity, decreasing the biodiversity, causing safety issues, etc.), and is therefore considered to be a pest. The accurate identification of unwanted vegetation (i.e., weeds) at Orphan sites is important for several reasons:

- Depending on their growth rates and characteristics, and their location within the site, control may not be warranted or desirable. For example, non-invasive vegetation growing on a topsoil storage berm is desirable;
- Control methods may differ depending on the plant species. Some may be easily controlled by non-chemical methods, but others, may only be managed with certain types of herbicides; and,
- Certain plants may be noxious weeds and must be controlled by law. A current listing of provincial and regional noxious weeds is found in the BC Weed Control Regulation, Schedule A.

Numerous resources are available to assist in the identification of unwanted vegetation. BCER staff and contractors use field guides and other identification tools to help them identify weeds, most of which are available online. Table 1 provides a short listing of the many online resources available.

Table 1: Vegetation Identification Information Available Online

BC Ministry of Forests, Lands and Natural Resources and Invasive Species Council of British Columbia	"Field Guide to Noxious Weeds and Other Selected Invasive Plants of British Columbia" (Download required)	https://bcinvasives.ca/wp-content/uploads/2023/05/Field-Guide-to-Noxious-Weeds-12th-WEB.pdf
BC Ministry of Agriculture, Food, and Fisheries	"Guide to Weeds in British Columbia" (Download required)	https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/invasive-species/alerts/guidetoweeds
E-Flora BC	Electronic Atlas of the Flora of British Columbia (Taxonomic plant website)	https://linnet.geog.ubc.ca/DB_Query/QueryForm.aspx
Peace River Regional District	Profile of Invasive Plant Species 2022-2025 (Download required) PRRD Invasive Plants	https://prrd.bc.ca/services/invasive-plants/#plans-and-reports https://prrd.bc.ca/services/invasive-plants/#plans-and-reports
Invasive Species Council of BC	Find an invasive species (Interactive webpage)	https://bcinvasives.ca/take-action/identify/

4.1.3 Monitoring Pest Populations [IPMR Section 58(2)(c)]

BCER staff and contractors monitor vegetation on or adjacent to their sites. Monitoring of sites 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 site. Monitoring is generally done visually and documented in writing.

4.1.4 Monitoring Methods [IPMR Section 58(2)(c)(i)]

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. When a site is designated an Orphan, the BCER, in conjunction with the vegetation management contractor and landowners, will begin monitoring sites to ensure that treatments are applied at the most effective times for weed control. The frequency of site monitoring is determined by the volume and type of weeds onsite. Sites that are heavily infested or have environmental sensitivities will be monitored more frequently.

4.1.5 Data Collected During Monitoring [IPMR Section 58(2)(c)(iii)]

During monitoring, each site will be visually assessed to determine if treatments are necessary, and, if

treatments are deemed necessary, on the timing of the treatments. The monitoring that is done at each site is visual, and the results may be recorded on a Site Management Plan and Data sheet.

The BCER Site Management Plan and Data Sheet provides a starting point for the collection of site information for sites requiring integrated vegetation management. A copy of this Site Data Sheet and Management Plan is shown in Appendix B. Lesser infested sites for which a Site Data Sheet and Management Plan is not developed will have an informal prescription prepared prior to treatment. The prescription will contain the following:

- Site sensitivities (nearby water bodies, pesticide-free zones, residual-free zones);
- Current conditions (surfacing materials, list of weed species within and outside the site);
- Preventive measures that can be taken; and
- Recommended treatment methods, procedures, and timing.

4.1.6 Injury Thresholds, Reasoning, and Application [IPMR Section 58(2)(d), (i), (ii)]

Injury threshold indicates the level of unwanted or targeted vegetation that, once exceeded, necessitates vegetation management actions. The level of injury thresholds varies as vegetation control is more crucial in specific areas than others, most often determined by a combination of following:

- Density of desired vs undesirable vegetation
- Properties of onsite and surrounding vegetation (including invasive, native, and agronomic)
- Regulatory requirements
- Land user preferences
- Considerations for public or employee safety
- Impact on nearby environmental features

The BCER and/or its contractors will visually assess the weed cover, and a decision will be made to act against weed problems based on the thresholds described below.

Table 2: Treatment Reasoning

Probability Rating	Purpose
1 – Extremely High Opportunity for Control	To stop the spread of invasive plants threatening currently non-infested, highly susceptible areas. These sites are smaller in size and there is a good probability of control. This rating includes sites that are threatening to impact neighbouring sites that hold cultural and economic values
2- High Opportunity for Control	To stop the enlargement of sites in highly susceptible areas. These sites are larger in size and must have a reasonably good expectation of control
3 – Moderate Opportunity for control	To stop the spread of undesirable species on larger sites within highly susceptible areas, or mid size sites in moderately susceptible area

4 – Low Opportunity for Control	To stop/contain the growth at larger sites.

4.1.7 Treatment Options & Selection Criteria [IPMR Section 58(2)(e)]

IPM involves the use of different techniques to control undesirable vegetation on Orphan sites. The IPM control techniques proposed for use under this PMP include physical, cultural, biological, and chemical (herbicides). Control methods will be determined based on site conditions and restoration objectives.
If there is an invasive plant or undesirable vegetation problem in or immediately adjacent to the operating area, then a suitable combination of strategies to control the population must be developed and implemented. The selection of treatment methods considers the control options available, potential cost of treatment, and environmental impact of the targeted invasive species. Depending on the objectives for the site, treatment methods should focus on practices that prevent weeds from producing viable seed, prevent vegetative propagation, suppress growth or vigour of the invasive weeds, or eradication.

Physical Control

Physical control requires manual or mechanical techniques to manage the vegetation. These actions including hand weeding, covering, mowing, cutting, cultivating, and burning.

- Hand weeding is useful for small patches. Plants should be pulled prior to seed production and when soil is wet. Wear gloves and long sleeve shirt to avoid any allergic reaction to plant material. Noxious weeds removed should be disposed by bagging and taking to a landfill to avoid re-introduction
- Covering with impermeable tarps, cardboard, or heavy poly is a short-term method. Using transparent covers during bright sunlight raises the temperature to a level that kills vegetation. Extreme heat is needed for transparent covers to be effective. Using non-transparent covers prevents plant growth due to light suppression. Care must be taken to ensure desired species are not covered.
- Mowing/cutting is acceptable when there are too many plants for hand pulling and cultivation or herbicides are not practical. Annual species must be cut before seed-set; perennials will require several cuts to deplete root reserves.
- Cultivation prevents seed production in annuals and depletes reserves and destroys underground roots in perennials. Sites must be reseeded immediately after cultivation or continually cultivated to prevent establishment of more or other invasive species.
- Burning can be effective for destroying seeds and should be used where seed production has already occurred. Safety precautions need to be considered if planning burning treatments.

Cultural control

Cultural control is the intentional planting of desirable species to displace or discourage undesirable species. Methods often include grazing by livestock, and re-planting. At a fundamental level, restoration of Orphan sites is a long-term cultural control.

- Livestock grazing can be a useful method for controlling weeds. Targeted weed species and their environment are the primary differences in effectiveness between grazers. There are many different things to consider when grazing, including plant toxicity, growth stage of the plant, and palatability.
- Cultural re-planting may consist of:
    - Cover cropping is the planting one or more species fast-growing, short-lived species across the entire site that help prevent growth of undesirable species without negatively affecting the growth of desired species. The cover crop may also protect desired species from temperature extremes and reduce soil erosion.
    - Companion planting uses different types of plants to help deter harmful insects, provide support for desired species, offer shade to smaller plants, provide weed suppression, attract beneficial insects, while improving overall soil health.
    - Cluster planting arranges species in higher density and tighter clusters when compared to conventional planting. The higher density helps prevent the establishment of undesirable species. There is a risk that the high stem count in cluster planting may cause the desired species to compete for resources that may suppress growth.

Biological Control

Biological control uses natural predators of the invasive species to establish a long-term balance between the biocontrol organism (agent) and the species. Biological control may kill the invasive plants directly or indirectly by decreasing reproductive and competitive abilities or plant vigour, which in turn encourages the re-establishment of native vegetation. Examples of biological control include the use of goats, sheep, fungi, bacteria, and insects. Presently, the BCER is not actively using biological controls, however, Orphan sites near ongoing biological control activities managed by other parties may benefit from that action. Furthermore, if it is deemed that a biological control agent could provide benefit to a, Orphan site, the BCER is not opposed to using this method as long as the introduction of the biological control agent does not negatively impact the area.

Chemical control (Herbicides) Selection IPMR Section 58(2)(e)

Although a main objective of this PMP is to minimize the use of herbicides for the control of problem vegetation where viable alternatives exist, herbicides are a valuable tool in vegetation management. This is especially true in areas where non-chemical methods cannot be employed, primarily because of safety and access issues.

While mechanical and cultural control are an important part of the BCER's IPM program, in some instances these methods can be impractical, dangerous for workers, incompatible with environmental protection values, labour intensive and expensive. Some 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 methods

are used to remove most of the vegetation from a site.

The rational for herbicide choice includes:

- The safest and most effective herbicide will be chosen depending on the site characteristics, injury threshold required and species of invasive plant;
- Herbicides are a useful tool that can be integrated with mechanical and/or cultural control to reduce or eliminate the spread of invasive species;
- The use of herbicides applied at prescribed label application rates (i.e. listed on the label) should provide excellent control of target invasive plants;
- Specific herbicide use will help rapidly reclaim lost lands due to heavy infestations of invasive species;
- It is very unlikely that manual, mechanical or cultural techniques alone will be effective at achieving the required level of control to reduce the spread of high priority invasive plants and manage existing infestations at priority sites due to their specialized biology and persistence;
- Herbicide use is often the only practical and safe method of controlling vegetation where passage with heavy equipment is unsafe; and
- Herbicides are considerably more economical when compared to mechanical.

Herbicide Characteristics

Herbicides can be classified depending on the combination of characteristics:

Selective vs Non-Selective

- Selective herbicide is designed to effectively control specific weeds and not other desirable species; examples include Milestone, 2,4-D, and MCPA.
- Non-selective herbicide will effectively control most vegetation including desirable species. Additional care is needed when applying non-selective herbicide to ensure desirable species are not accidentally impacted. Glyphosate (Roundup) is the most well-known variety of non-selective herbicide.

Residual vs. Non-Residual

- Residual herbicide is one that tends to persist in the soil for a period of time. Most residual herbicides provide season long control of their targeted species, with many some spanning beyond single season control. Trade names of residual herbicides include Milestone, Tordon 22K, and Ally.
- Non-residual herbicide breaks down quickly in the soil and leaves little or no residue. Glyphosate (Roundup) is the most well-known variety of non-residual herbicide.

Pre-Emergent vs. Post-Emergent

- A pre-emergent herbicide controls weed seeds and sprouts before they leave the ground. These are generally residual herbicides that enter the plant from the soil.
- A post-emergent herbicide is applied directly onto the growing foliage or plant stems. These can be either residual or non-residual herbicides.

Systemic vs. Contact

- Systemic herbicides kill the entire plant by spreading gradually throughout its vascular system, from either foliar application down through the plant, or soil application, up towards the leaves. Systemic herbicides work after being absorbed by a plant's leaves or roots and translocated to the rest of the plant.

- Contact herbicides are those that only affect the part of the weed that they "contact" They don't move into or affect any other part of a plant. They were the first herbicides used and surprisingly, they still are better at controlling some weeds than any other products that have been developed.

All herbicides are grouped according to their mode of action on the plant. When described, these chemicals are often identified as being part of an herbicide group: Group 1, Group 2, etc. This differentiation of herbicide groups is important in preventing herbicide resistance from developing. Using different modes of action and different herbicide groups to control problem weeds will help to prevent plants from building a herbicide resistance. Details on the herbicide groups, their actions, and expected symptoms can be found in Appendix C.

A full listing of the herbicides, their herbicide group, active ingredient, and common trade names can be found in Appendix D of this PMP. The broad listing of herbicides allows the BCER to make site- and species-specific treatment decisions. Due to many of the listed active ingredients being for available for use under multiple trade names, only the most common names are provided. Any or all products, registered for sale or use in Canada, containing one or more of these active ingredients may be used.

Herbicide Application Equipment

The application equipment proposed for use in applying herbicides under this PMP include:

- Backpack - A backpack is a portable, manually operated, pressurized container with a nozzle for spraying herbicides. Directed spray from a backpack unit will selectively control targeted vegetation;
- Boom Sprayer - Boom sprayers are widely available commercially for UTVs and agricultural tractor equipment. They use a solution tank and booms with evenly spaced nozzles to deliver a controlled volume;
- Boomless Sprayer - Boomless sprayers are specialized equipment designed to develop and deliver a uniform droplet size and pattern. This is usually accomplished with a system that uses multiple orifices in fewer nozzles, lower pressures and higher water volumes for even herbicide distribution.
- Power hose Spray gun - A hand-held spray gun and hose attached to a portable tank filled with herbicide will selectively control a variety of vegetation with directed spray. Spray guns are efficient for larger scale applications, and can be used for the application of all herbicide liquid mixtures.
- Wick Applicator - Wick applicators are used to selectively apply herbicide by wiping it directly

onto plants. Wicks are made of rope or absorbent pads. Wipe-on wick application is ideal for areas where no spray drift can be tolerated.

- Squirt Bottle - A hand-held, non-pressurized container, used to apply the herbicide active ingredients.

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

IPM involves a decision-making process that ensures the most suitable, effective, environmentally compatible, and cost-effective method or combination of methods is selected for a particular site. In making these decisions, the BCER and contractors will generally use the following assessment criteria to justify and evaluate the method(s) chosen:

- Urgency of the required treatment;
- Species of problem vegetation;
- Current life stage of problem vegetation;
- Location and accessibility of the problem vegetation (riparian areas, pasture, terrain, etc.);
- Safety issues;
- Effects of not treating the site;
- Effect on adjacent property owners and land uses;
- Indigenous and public concerns;
- Short and long-term impacts of the method(s) being considered;
- Expected efficacy of the method(s) being considered;
- Environmental considerations (proximity to water sources, bodies of water, food growing or planted for human consumption, riparian areas, wildlife and fish habitat); and,
- For herbicide treatments, the choice of herbicide, application methods and equipment.

Wherever possible the contractor and the BCER will work to ensure that treatments are applied at the most effective time for weed control. If the treatment option being considered involves the use of an herbicide, the most effective control will be achieved if the herbicide is applied at the correct growth stage of the weed.

At the conclusion of the treatment, the contractor will record on the plan the following information:

- Site location;
- Weather, date, and time of treatment;
- The target species;
- The active ingredient(s) applied, application rate, total area treated;
- An estimate of the total area treated

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

During their regular operations and maintenance site visits, the BCER and its contractors will monitor the effectiveness of vegetation management treatments.
Post treatment evaluations will determine:

- Compliance with the commitments made in this PMP;
- Compliance with the IPMA and IPMR;

- That site objectives have been achieved;
- The success of the treatment methods utilized;
- 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 species, as well documentation of any non-target treatment that is evident. Effectiveness of the treatments will be evaluated. Appendix G provides an example of a Post-Treatment Inspection report.

The above information can also be used in the Sites Site Data Sheet and Management Plan.

5.0 Environmental Protection Strategies and Procedures

All pest management activities undertaken under this PMP (both chemical and non-chemical) incorporate measures designed to protect the natural environment including:

- Community watersheds;
- Domestic and agricultural water sources;
- Fish and wildlife, riparian areas, bodies of water and wildlife habitat;
- Herbicide 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 herbicide 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 pesticide free zones (PFZ) and no treatment zones (NTZ) will comply with the standards contained in Division 7 of the IPMR. These zones can be found in Table 3, NTZ and PFX setbacks to Wildlife, Domestic, and Agricultural Water Sources.

5.1 Water Protection PFZs and NTZs

The BCER based the size of the pesticide-free zone (PFZ) and no treatment zone (NTZ) on the standards currently contained in the IPMA and the IPMR.

Definitions:

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.

No-treatment zone (NTZ) – an area of land that must not be treated with pesticides. It acts as a buffer to ensure no pesticide enters the PFZ. This zone may vary depending on the applicator and pesticide type. NTZs will be identified, marked/flagged prior to any herbicide application.

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.

Riparian – the area of land adjacent to a stream, river or wetland that contains vegetation that, due to the presence of water, is distinctly different from vegetation of adjacent upland areas.

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.

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.

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

5.2 Strategies to Protect Community Watersheds

Prior to herbicide use, the BCER shall implement the following strategies to protect community watersheds:

- The location of community watersheds to be protected shall be verified by accessing the Community Watershed website of the BC Ministry of Sustainable Resource Management at http://www.env.gov.bc.ca/wsd/data_searches/comm_watersheds/index.html;
- Herbicides shall not be stored within a community watershed for more than 24 hours prior to their use, and shall be removed from the community watershed within 7 days of use, unless they are stored in a permanent structure;
- A 10 metre PFZ shall be maintained from the point of herbicide application and all bodies of water within the community watershed;
- A 30 metre PFZ shall be maintained down slope between the point of herbicide application and all licensed water intakes within the community watershed;
- A 100 metre PFZ shall be maintained upslope between the point of herbicide application and all licensed water intakes within the community watershed; and
- All PFZs shall be measured and marked/flagged prior to herbicide use;

5.3 Strategies for Protecting Fish and Wildlife, Riparian Areas and Wildlife Habitat

In addition to the PFZ's specified earlier for bodies of water, extreme caution will be exercised when working with herbicides adjacent to and within sensitive ecosystems including riparian and sensitive wildlife habitat.

Riparian vegetation management considerations shall include provisions to ensure there is no harmful

alteration, damage or destruction to fish or their habitat. This includes procedures to minimize impact to vegetation cover, bank stability, turbidity, and nutrient cycling.

In order to achieve this, hazard assessment documentation shall describe best management practices. These will be reinforced during initial contractor meetings, as well as field safety meetings with contactor staff and field workers. There shall be regular inspections, and in some cases, there shall be detailed and direct supervision by subject experts.

Best management practices include:

- No refueling of machinery or mixing of herbicide within 30 metres of a riparian zone;
- No clean up or disposal of herbicide materials within 30 metres of riparian zones;
- Preserving as much vegetation as possible around riparian zones;
- Ensuring no deleterious materials enter the watercourse, including herbicides, fuels, debris, sawdust, or sediment; and
- Herbicide use will not remove vegetation that is needed to prevent erosion of a streambank.

Wildlife and their habitat will be protected as follows:

- Control noxious weeds (as designated under the Weed Control Act);
- Identify and protect, where possible, high-use wildlife vegetation and wildlife trees;
- Ensure that herbicide use is directed only at target vegetation;
- Minimize soil erosion caused by vegetation management activities to reduce impact on desirable plants or wildlife;
- Identify and protect wildlife features such as naturally occurring mineral/salt licks;
    - A naturally occurring mineral lick that is used at least annually by one or more species as evidenced by:
        - well-established trails or braided trail systems leading to the mineral lick site;
        - extensive excavation or trampling; and/or
        - teeth marks, pellets, tracks, and hair.

All herbicides used by the BCER have been approved by the federal Pest Management Regulatory Agency. Herbicide labels must be reviewed prior to use to learn of any potential effects to wildlife and livestock. By choosing properly, these approved herbicides are unlikely to have any toxic effects on wildlife. Applicators will adjust their work to ensure the protection of wildlife and their habitat. Applicators will continuously survey the work area for indicators of wildlife use. Should there be signs of recent activity, applicators may need to alter the treatment method, postpone treatment, or other actions that may protect the wildlife.

5.4 Strategies to Prevent Herbicide Contamination of Food Intended for Human Consumption

Orphan sites are not frequently located near environmentally sensitive areas such as lawns, vegetable gardens, berry picking and bee keeping areas but are frequently located near areas containing agricultural crops and domestic animals. Food for human consumption is sometimes grown or found within these areas.

Prior to herbicide applications, the BCER will ensure strategies are developed and implemented to prevent herbicide contamination of food intended for human consumption including:

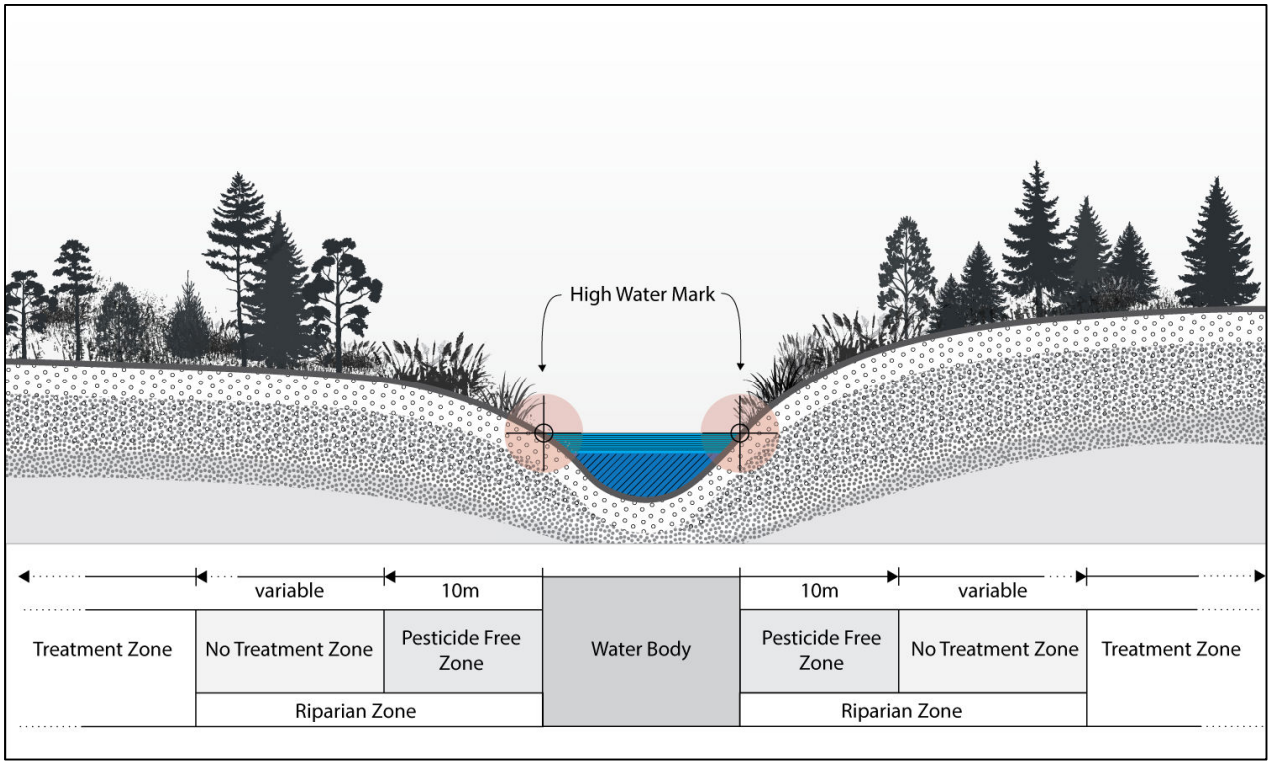
- During the PMP consultation process, First Nations are invited to forward the names of those plant species of cultural importance, so that they are not inadvertently affected during treatment activities. Additional undesirable invasive plant species will be added to this list if identified by First Nations, stakeholders, and other groups or individuals. Efforts will continue through formal and informal consultation to determine the locations of these activities. Some measures could include delay of treatment or alteration of treatment boundaries;
- Non-chemical methods of invasive plant management shall be considered where treatment objectives can be achieved;
- If control methods involve the application of herbicides, increased NTZs may be maintained, if required, during herbicide applications around areas where food for human consumption is growing;
- Treatment notices shall be posted at public access points to proposed treatment areas advising of treatment near the food crops. This will ensure that people are aware that the area has been treated with herbicides;
- Treatment notices will include the date of when it is safe for foods to be harvested for the treated site. The product label will be the source of this information; and,
- Where possible, herbicide treatments shall be timed to minimize impacts on food plants.

Table 3: NTZ and PFZ setbacks to Wildlife, Domestic, and Agricultural Water Sources

All Herbicides	Required Distance
Domestic and agricultural wells and water intakes	30 metre NTZ*
Any water body or stream using any pesticide **except glyphosate**, subject to label restrictions	10 metre PFZ
Glyphosate Applications	
A water body or stream that is fish bearing and not within an industrial site (as defined by Integrated Pest Management Regulation)	5 metre PFZ
A water body or stream that is fish bearing and within an industrial site (as defined by Integrated Pest Management Regulation)	2 metre PFZ
A permanent water body that is not fish bearing at any time of the year	2 metre PFZ
Dry streams that are not fish bearing at any time of the year and do not drain directly into fish bearing water, at any time of the year	0 metre PFZ
Up to high water mark of a temporary free-standing body of water that is not fish-bearing and does not drain directly into fish-bearing water, at any time of year	0 metre PFZ

*The 30m NTZ may be reduced if the certified applicator is reasonably satisfied that a smaller zone will ensure no herbicide will enter the water supply, intake or well.

Table 3: Riparian Zone showing NTZ and PFZ.



The NTZ is variable depending on the herbicide and applicator type. Should the NTZ be decreased, the applicator will provide reasoning in the site application report.

5.5 Pre-Treatment Inspection Procedures for Identifying Treatment Area Boundaries

The following procedures shall be implemented to ensure that treatment area boundaries are identified and clearly marked prior to herbicide applications:

- A pre-treatment inspection shall be conducted to establish treatment boundaries and to document the location of environmentally sensitive and previously known cultural areas;
- Treatment area boundaries and the location of environmentally sensitive and previously known cultural features shall be mapped;
- A pre-treatment meeting shall be held with the Contractor to confirm treatment area boundaries and the locations of environmentally sensitive features; and,
- Marking/flagging of all PFZ's and NTZ's shall be completed, and the Contractor instructed to observe these areas, prior to herbicide application

5.6 Procedures for Monitoring and Adjusting to changing Weather Conditions

Personnel will check the product label for guidelines for applying herbicides under various weather conditions, as well as monitor weather information obtained from Environment Canada and other official and recognized sources. Before and during herbicide application, personnel will record and consider the effects of the following:

- Precipitation

- Wind (both speed and direction)
- Temperature
- Any other abnormal weather event, such as snow, frost, etc.
- Herbicide application must stop if:
- The maximum temperature stated on the herbicide label is exceeded;
- The wind speed and/or direction cause the handgun or backpack application of herbicide to drift and/or miss the target vegetation; or
- It begins to rain, increasing the chances of excessive runoff and/or leaching.

6.0 Operational Information

6.1 Qualification and Responsibilities of Persons Applying Herbicides

All herbicide applications will be supervised by qualified contractors in possession of a valid Pesticide User License and be a Certified Pesticide Applicator. Any personnel assisting must have completed the Assistant Applicator training. The Certified Pesticide Applicator's responsibilities are:

- Be in continuous attendance at the site;
- Have available proof of certification;
- Ensure all assistants have applicable Assistant Applicator training;
- Maintain continuous auditory and/or visual contact with the uncertified applicators;
- Be within 500m of the persons being supervised; and
- Comply with the reporting standards outlined in Division 7 of the IPMR.

A certified individual who is supervising assistant applicators:

- must not be more than 500 m from each assistant applicator,
- must maintain continuous visual or auditory contact with each assistant applicator,
- must review the record kept under section 59.2 [training and training records] in respect of each assistant applicator, and
- must not permit an assistant applicator to apply a pesticide unless satisfied that the assistant applicator has completed the course required under section 59.2 (1).

6.2 Protective Equipment

Protective clothing and equipment required during pesticide mixing, loading, application and disposal will conform with Workers' Compensation Board Occupational Health and Safety Regulations. Equipment such as protective clothing, headgear, eye and face protection, gloves, footwear, and respiratory protection equipment must be used where required. Applicators will review the pesticide's Safety Data Sheet prior to handling, mixing, and/or applying to verify the protective equipment needed.

6.3 Procedure for Safe Transportation of Herbicides

The transportation of pesticides will comply with all current legislation, federal and provincial, governing their transport. In addition, the following procedures will be followed while pesticides are being transported for application under this PMP:

- Limited amounts of pesticides will be carried in any one vehicle. The quantity will be no more than what is necessary for each project except where transportation between storage facilities occurs;
- Pesticides will be carried in a secure lockable compartment to prevent against spillage and unauthorized removal;
- Pesticides will be transported in original labeled containers. If labels are not available, the pesticides shall be placed in an appropriate container that have the trade name, active ingredient and active ingredient concentration and pesticide registration number affixed to the outside of the container;
- Pesticides will be transported separately from food and drinking water, safety gear and people;
- Spill containment and clean up equipment will be transported separately from pesticides, but in close proximity to them, on each vehicle during transport and use;
- Appropriate documents such as Safety Data Sheets (SDS), this PMP and the PMP approval document, will be available during transport and use of pesticides;
- All documents and placards will be carried in, or placed on, transport vehicles as required under the Transportation of Dangerous Goods Act, the IPMA, and IPMR;
- All pesticide containers will be inspected for defects prior to transporting, and will be secured against spillage or unauthorized removal; and
- Read and understand the herbicide labels and SDS prior to the transport of the herbicide.

6.4 Procedures for Safely Storing Herbicides [IPMR Section 66]

All pesticides will be supplied by the contractor, who must follow, as a minimum, the storage requirements described below:

- Pesticides stored on BCER or the contractor's property will be in accordance with the IPMA, and IPMR; and WorkSafe BC's document "Standard Practices for Pesticide Applicators";
- Be ventilated to the outside atmosphere;
- Be locked when left unattended;
- Be entered only by persons who are authorized to do so; and,
- Have a placard affixed and maintained on the outside of each door leading into the facility in which the pesticides are stored bearing, in block letters that are clearly visible, the words " WARNING – CHEMICAL - STORAGE -AUTHORIZED PERSONS ONLY ", Appendix E provides an example of this placard.

In addition, the person responsible for the storage area shall notify the appropriate fire department of the presence of the pesticide on the premises.

While the BCER has no direct control of the pesticide storage practices of its contractors, their storage requirements are governed by the provisions within the IPMA and IPMR.

Contractors may store pesticides for extended periods of time in vehicles, which will be considered to be a mobile storage unit. Persons responsible for the pesticide storage will ensure the pesticides are stored in a locked cabinet or similar arrangement; and will be separate from the driver, food intended for human or

animal consumption, and the worker's personal and protective gear.

6.5 Procedures for Safely Mixing and Loading Herbicides

Personnel will follow these instructions to mix and load herbicides:

- Ensure that persons mixing or loading herbicides are Certified Pesticide Applicators, and will use proper protective equipment and clothing;
- Before mixing, read the product label and Safety Data Sheet, and follow all safety precautions and mixing instructions;
- Ensure that emergency wash facilities, first aid equipment, spill kits, spill response plans, each herbicide's SDS, a copy of this PMP and emergency response plan and emergency contact information are available onsite;
- Use clean water free of any suspended particles;
- Use appropriate procedures to prevent backflow of herbicides into the water source;
- Conduct mixing and loading in areas a minimum of 15m of any pesticide-free zones to prevent any spilled herbicides from entering water bodies, water wells, water intakes or other environmentally sensitive areas;
- When drawing water from a waterbody or an irrigation system, maintain a gap between the herbicide and the equipment to prevent backflow;
- Do not wash or submerge in a waterbody any container used to prepare, mix, or apply herbicides;
- Keep containers well below eye level to prevent splashing or spilling herbicides in the face or eyes; and
- Pre-mix wettable powders with water to reduce airborne dust.

6.6 Procedures for Safely Applying Herbicides

Personnel will follow these instructions to apply herbicides:

- Conduct a pre-job Hazard Assessment meeting with all personnel on site to discuss the intended work schedule, the work plan for the site, the types of herbicides being used, intended length of time to be on site and current and forecasted weather conditions;
- Herbicides will be generally applied during periods of low staff or public presence, in the early morning or evening, or on weekends if necessary;
- Whenever possible, herbicides will be applied when target species are at their most susceptible stage;
- Use the most practical, suitable, target-specific application techniques, possible for the application. These may include any of the approved methods of application;
- Do not use foliar applications if the wind speed exceeds 8km/hr;
- Follow directions and restrictions on product labels and SDS for all herbicides;
- Do not spray herbicides if it is raining;
- Do not apply any herbicide within a pesticide-free zone, residual-free zone, or no treatment zone;
- Do not spray herbicides on foliage covered by ice or frost;
- Do not use a residual herbicide on water-saturated soil, during heavy rainfall, or if heavy rainfall

is imminent; and
- Record and report the herbicides to be used, application rates, timing, quantities, treatment area, and species to be controlled, and closely follow all specifications.

6.7 Procedures for Safe Disposal of Empty Herbicide Containers and Unused Herbicides

The contractor is responsible for the proper disposal of empty, and unused herbicides and their containers. Personnel shall follow these procedures for safely disposing of empty herbicide containers and unused herbicide:

- Plan all applications carefully to minimize excess and waste;
- Ensure that all herbicide waste is disposed of in a manner consistent with the requirements of the BC Environmental Management Act, the IPMA, IPMR, and the manufacturer's instructions as noted on the product label;
- All empty containers must be:
    - Triple rinsed or pressure washed; and
    - Altered so they cannot be reused
- Where available, empty herbicide containers can be returned to the herbicide supplier as part of their recycling program, or disposed of in a permitted sanitary landfill or other approved disposal site;
- Any leftover herbicide mix should be saved for future use and stored in a manner consistent with the storage requirements specified in Section 6.4, Procedures for Safely Storing Herbicides.

For more information on how to dispose of unwanted pesticides, and empty containers, visit www.cleanfarms.ca

6.8 Procedures for Responding to Herbicide Spills

Spill treatment equipment will be ready and available at storage facilities (including mobile storage), mixing, loading and application sites, and will include the following:

- Personal protective equipment, as recommended on the respective pesticide labels;
- Absorbent material such as sawdust, sand, activated charcoal, vermiculite, dry coarse clay, kitty litter or commercial absorbent;
- Neutralizing material such as lime, chlorine bleach or washing soda;
- Long handled broom, shovel, and waste-receiving container with lid; and
- A copy of an approved spill response plan will be available at each work site. All personnel working on a project involving pesticides must be familiar with its contents. If contractors that work under this PMP have their own spill response plan, it must meet or exceed the contents of this plan.

The following procedures must be followed if a spill occurs:

- All personnel will be protected from pesticide contamination by wearing appropriate protective clothing and safety gear;
- Any person exposed to a pesticide will be moved away from the place of the spill and kept warm. First aid will be administered, if required;

- The source of the spill will be stopped;
- The spilled material will be stopped from spreading by creating a dam or ridge;
- The project supervisor will ensure operations cease until the spill is contained and the source is repaired;
- Absorbent material will be spread over the spill, if applicable, to absorb up any liquid;
- The absorbent material will be collected into garbage bags or containers, with the contents clearly marked;
- Contaminated soil or other material will be removed from the spill site and placed in garbage bags or containers;
- Where the pesticide involved in the spill results or may result in its release into the environment, or more than 5 litres of herbicide are spilled, the person responsible for the product will immediately report it to the Provincial Emergency Program by telephoning 1-800-663-3456 or, where that is impractical, to the local police or nearest detachment of the RCMP; and,
- The BCER will be notified of the details related to the spill as soon as is practical by the contractor.

The following contacts are available 24 hours a day, and can be used for assistance in a spill:

- BCER and the Provincial Emergency Program (PEP): 1-800-663-3456 9 (via Emergency Management and Climate Readiness);
- Medical Emergency: 911; and
- BC Poison Control Centre: 1-800-567-8911

6.9 Procedures for Maintaining and Calibrating Herbicide Application Equipment

All equipment used under this PMP will be safe for use, in good repair, and be the appropriate tool for the chosen herbicide. The contractor is responsible for maintaining and calibrating their equipment prior to use.

The contractor, at a minimum, will follow these instructions:

- Daily visual inspections of all equipment including hoses, connections, nozzles, pumps, etc.;
- Keep a record for each piece of application equipment showing when it was calibrated and the data upon which the calibration was based;
- Calibrate application equipment at the beginning of the year and at regular intervals throughout the season to ensure conformance to the application rates on the pesticide label. Calibration techniques are found in the BC Pesticide Applicators Handbook or are provided from the equipment manufacturer;
- If inconsistent spray patterns become apparent, or if a mixed tank is not covering as much ground as it should, check the calibration and replace faulty equipment as needed;
- For boom sprayers and controlled droplet boomless sprayers, use a “dry- run” method of checking calibration by operating the sprayer with water only over a dry gravel or pavement area and then looking for differences in drying time over the pattern. This may indicate faulty or plugged nozzles;
- Replace parts that are prone to failure, and carry spares; and
- Implement a regular maintenance schedule on each piece of equipment following the operator’s manual. If the operator’s manual is not available for a piece of equipment, maintain the equipment

to generally accepted standards.

6.10 Procedures for Monitoring and Adjusting to changing Weather Conditions

Contractors will check the product label for guidelines for applying herbicides under various weather conditions, as well as monitor the current weather, meteorological conditions, and forecasts for the geographic area via local radio stations, and/or reputable websites such Environment Canada.

Before and during herbicide application, personnel will record and consider the effects of the following:

- Precipitation;
- Wind (both speed and direction);
- Temperature; and
- Any other abnormal weather event, such as snow, frost, etc.

- Herbicide application must stop if:
- The maximum temperature stated on the herbicide label is exceeded;
- The wind speed and/or direction cause the handgun or backpack application of herbicide to drift and/or miss the target vegetation; or
- It begins to rain, increasing the chances of excessive runoff and/or leaching.

6.11 Posting of Treatment Notices

Treatment Notices will be posted in access locations and areas where they are clearly visible and legible for employees, the public and contractors. The signs will be posted for 2 weeks after herbicide application and include the following information:

- The trade name and active ingredient of the herbicide that will be used;
- The date and time of the application;
- The purpose of the treatment;
- Precautions to take to prevent harm for people entering the treatment area;
- The PMP confirmation number;
- The plan holder(s) contact information.

The Treatment Notice sign shall be:

- A minimum of 550 cm^2;
- Water resistant;
- Display the title “Notification of Herbicide Application” in bold letters which are clearly legible to people approaching the area.

An example of the Treatment Notice is available in Appendix F.

7.0 Reporting, Notifications and Consultation

7.1 Reporting

Accurate record keeping allow the BCER to monitor the quantity of pesticides used, and to ensure compliance with the IPMA and IPMR, the commitments made in this PMP, and the contents of the Pesticide Use Notice. The BCER will ensure that each of the required records described below are maintained.

7.1.1 Confirmation Holder Use Records

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;
- The prevailing meteorological conditions including temperature, precipitation and velocity and direction of the wind. These conditions should be measured before starting treatment, re-measured if notable changes to the weather occur, and re-measured at the end of any treatment day;
- Any additional safety information or advice provided to the BCER by the applicator regarding the control method used; 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.

7.1.2 Annual Report for Confirmation Holders

In accordance with Section 39 of the IPMR, the BCER will provide the following information prior to Jan 31 in the next calendar year to the Integrated Pest Management Branch for operations conducted under this PMP during the calendar year:

- The name and address of the confirmation holder, and their confirmation number;
- Trade name and active ingredient of the pesticide(s) applied, including their PCP numbers;
- Total area treated; and,
- Quantity of each active ingredient applied in kilograms.

7.2 Notifications

7.2.1 Notification of PMP Confirmation

Within 7 days of receiving confirmation of the PMP, the BCER will post to their website a copy of the confirmation and the completed PMP with relevant maps. You can view this at Orphan Sites | BC Energy Regulator (BCER) (bc-er.ca)

7.2.2 Annual Notice of Intent to Treat (NIT) as Confirmation Holder

As per section 42 of the IPMR, for the purpose of an annual Notice of Intent to treat, the BCER will prepare and retain a detailed map showing the treatment locations for the applicable calendar year, which indicate the following for each treatment location:

- The proposed treatment areas;

- The geographic features that require a pesticide-free zone or a no-treatment zone.
- The BCER will forward, in writing, to the BC Ministry of Environment, at least 21 days prior to treatment in each year during which the PMP is in effect, an NIT which will identify:
- Name and business location of confirmation holder;
- Proposed treatment areas;
- Proposed treatments;
- Pesticides proposed for use and their method of application; and,
- The total area proposed for treatment.

7.2.3 Notification of Contraventions

If the BCER believes that they, as confirmation holder, their contractor, or another person has contravened the IPMA or it's regulation in a manner involving the release of pesticide into the environment, the confirmation holder must give written notice to the administrator as soon as practicable.
In addition, the BCER has implemented contractor guidelines to ensure compliance. Failure of the contractor to observe the following requirements may be cause for contractor dismissal:

- Violation of the requirements of the IPMA or the IPMR;
- Failure to use adequate personal protective equipment when required by the product label;
- Application of pesticides by uncertified personnel without appropriate supervision;
- Mixing of chemicals in inappropriate locations such as near environmentally sensitive zones;
- Application of pesticides under inappropriate or unsafe conditions;
- Application of treatment chemicals within prohibited zones;
- Improper cleanup or reporting of spills;
- Improper disposal of unused chemicals or containers;
- Improper equipment calibration;
- Failure to properly complete and submit daily operating logs or records; or,
- Handling, storing, mixing, transporting, or applying pesticides in a manner that violates product labels.

7.2.4 Requests to Amend the PMP

Proposed amendments to this PMP will be provided in writing to the Ministry of Environment.
Amendments to add new application techniques or similar changes will not require further public advertising or Indigenous consultation, provided the amendments are for use on lands managed by the BCER.
Amendments to add new active ingredients will require further public advertising and/or Indigenous consultation.

7.3 Consultations

7.3.1 Public Consultation Plan

Prior to submitting a Pesticide Use Notice to the Ministry of Environment for PMP confirmation, the BCER will carry out a consultation process with the public and individuals adjacent to Orphan property potentially significantly affected by the PMP.

The objectives of conducting 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 the BCER 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 manage problem vegetation, noxious weeds and invasive plants; and,
- To explain how the planning process that is described in the PMP recognizes the need to protect human health and the environment.

For a minimum of three days per week for two consecutive weeks, communities and the public near treatment areas will be consulted of the PMP development via notices in local digital media news websites throughout the BCER service area. The notice will also include a link to a website where the Pest Management Plan is accessible for public viewing.

Communities or individuals adjacent to Orphan sites significantly affected by the PMP will be directly forwarded written notice of the development of this PMP, prior to submitting a Pesticide Use Notice.

The BCER will continue to engage and consult with Indigenous communities, the public, landowners, and stakeholders throughout the life of the PMP.

During the public consultation process, the draft PMP will be accessible via the BCER Orphan website at Orphan Sites | BC Energy Regulator (BCER) (bc-er.ca)

7.3.2 Public Consultation Report

The BCER will prepare 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 BCER response to the input from the public; and,
- A list of digital media outlets in which notification of the pending PMP submission appeared, along with the dates of posting, and print out of the notice posted in the local digital media news outlets.

7.3.3 Indigenous Communities Consultation Plan

In addition to the objectives for public consultation outlined above, the BCER will consult with Indigenous communities whose known traditional use area is within 20km of an Orphan site to avoid infringement on Indigenous rights, treaty rights, or cultural values during the vegetation management program. This 20km buffer will also be used to consult with nations when new sites are added to the OSRF. Consultation is also undertaken to request authorization to undertake pesticide applications on federal reserve lands.

The BCER Indigenous consultation plan is outlined below:

- Develop a draft pest management plan (this document) that incorporates all related government policies, procedures, standards, and information into a single, comprehensive document that incorporates the principles of IPM as the basis for decision making options;
- Deliver an introductory letter including information regarding the PMP and program, and make the PMP available to Indigenous communities, inviting their input into the development of the plan and provide the PMP draft, and Orphan site shapefiles, and if requested, meet with them in person;
- Provide the Ministry of Environment a summary of consultation with Indigenous communities, including the names and addresses of those that provided input, the nature of their concerns and/or recommendations, and the BCER response to the input from the Indigenous communities; and,
- Indigenous communities will receive three contact efforts unless they have had prior contact and questions have been satisfied.
- Submit a Pesticide Use Notice to the Ministry of Environment confirmation of the PMP

Indigenous Communities Consultation Report

In order to facilitate Ministry consideration of the adequacy of Indigenous community consultation and of the BCER response to any issues raised, the BCER 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, and Annual Notice of Intent to Treat.

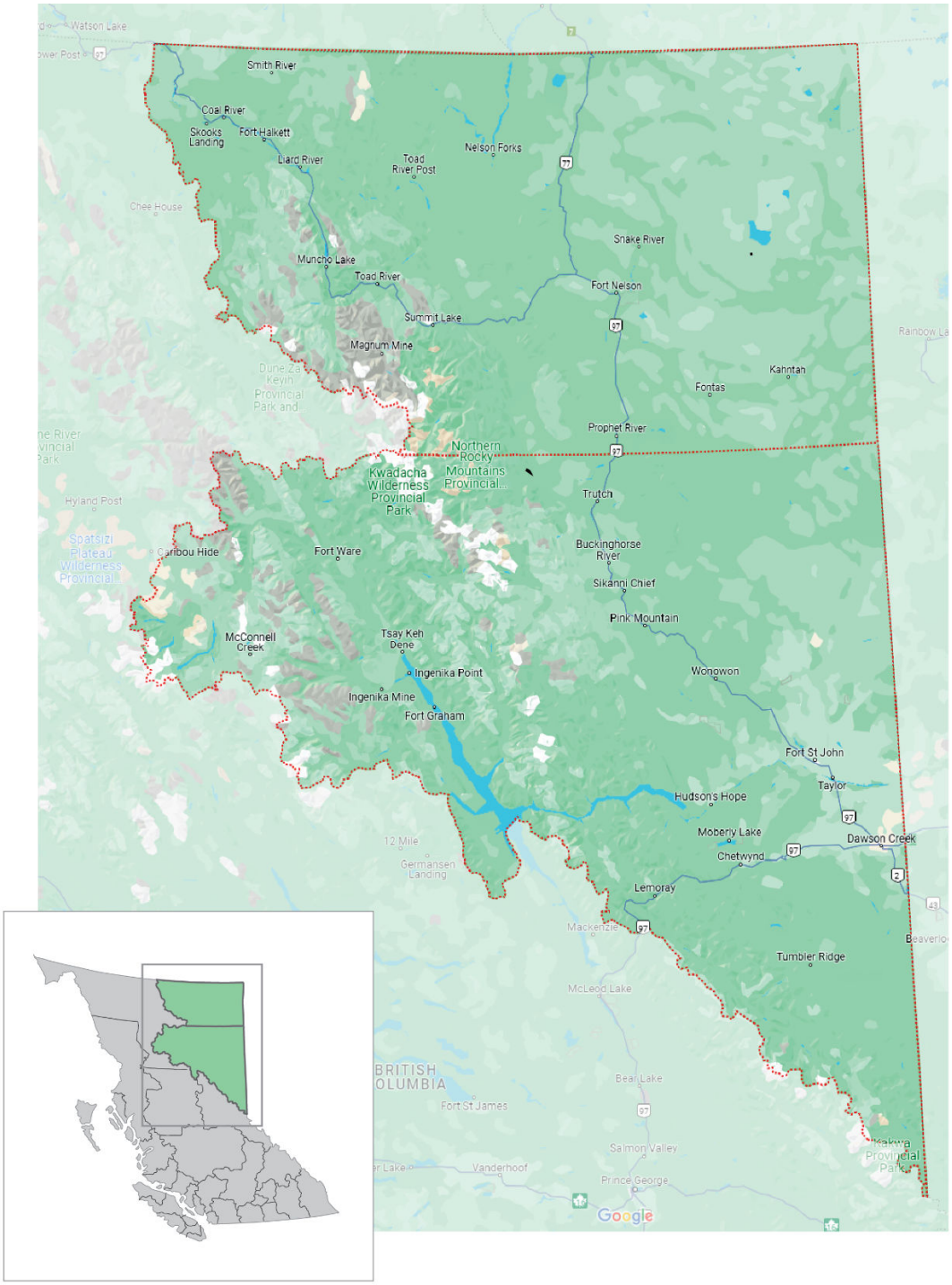
Appendices

The following is a list of appendices included in this PMP.

Appendix A: BCER Service Area of Pest Management Plan
Appendix B: Site Data Sheet and Management Plan
Appendix C: Herbicide Groupings, modes of actions, and effects of use
Appendix D: Herbicide listed by groups, including active ingredients and common trade names
Appendix E: Example of a chemical storage sign
Appendix F: Example of a site treatment sign
Appendix G: Post-Treatment Inspection Report

Appendix A Orphan Service Area of Pest Management Plan

The geographic extent of this PMP is limited to orphan sites managed by the BCER through the OSRF within the Peace River Regional District and Northern Rockies Regional Municipality. To view the individual sites, visit the Orphan site web map at: https://geoweb-ags.bc-er.ca/portal/apps/webappviewer/index.html?id=a93cadbbd1044b148d0deb8f7f3ee59f



Appendix B: Site Data Sheet and Management Plan

Monitoring Date:_____ Name of Monitor:_____

W# and Location of Site (attached diagram if required):_____

Target Species	Density/Percent Cover	Is it spreading/negatively impacting desired vegetation	Exceeds Threshold?
Sensitive Non-Target Species	**Density/Percent Cover**	**Protection measured used (cover, buffer zone, control method change, etc.)**	**Overall health and robustness of stand**

ENVIRONMENTAL CONSIDERATIONS

Soil type: _____ Aspect: _____ Slope:_____

Water Sources or wells within 30 m of site: YES NO

Bodies of water within 30 m of site: YES NO

Is the site within 30m of known important wildlife features (licks, dens, burrows, wildlife trees): YES NO

If yes to any, describe:_____

CULTURAL CONSIDERATIONS:

Is the site inside, or within 5km of a previously identified traditional use area: YES NO

Are there known cultural interests on site that must be protected: YES NO

If yes to any, describe the interest and any additional protections:_____

Recommendations for additional monitoring/treatment: _____

Appendix C: The Mode of Action, Site of Uptake and Symptoms of Different Herbicide Groups

Group	Mode of Action	Site of Uptake	Residual	Effects on Grass	Effects on Broadleaf
None	Acetic and Citric acid	Foliar	None	Foliar contact results in rapid burndown of annual weeds and suppression (top growth reduction) of herbaceous perennial weeds.	
1	Systemic; These chemicals block an enzyme called ACCase. This enzyme helps the formation of lipids in the roots of grass plants. Without lipids, susceptible weeds die.	Foliar	Minimal to none	Reduced growth, yellowing of growing point in 1 to 3 weeks. Newest leaf of affected plant pulls out easily in 3 to 5 days.	Tolerant
2	Systemic; ALS/AHAS inhibitors. These chemicals block the normal function of an enzyme called acetolactate (ALS) actohydroxy acid (AHAS). This enzyme is essential in amino acid (protein) synthesis. Without proteins, plants starve to death.	Foliar/Soil	Yes	Newest leaves yellowed in 3 to 10 days, dead in 1 to 3 weeks.	Newest growth discolored (red/yellow/ purple) and/or miniaturized; the whole plant is involved in 1 to 3 weeks.
3	Systemic; Microtubule assembly inhibitors. These chemicals inhibit cell division in roots	Soil	Yes	Reduced emergence, poor root development of emerged plants. Roots often swollen/stunted and root tips darkened.	Reduced emergence, poor root development of emerged plants.
4	Systemic; Synthetic auxins. These chemicals disrupt plant cell growth in newly forming stems and leaves; they affect protein	Foliar	Product specific. Check label prior to use.	Tolerant to moderate rates. High rates cause symptoms similar to drought.	Abnormal growth (twisted stems, cupped leaves) in 2 to 10 days.

Group	Mode of Action	Site of Uptake	Residual	Effects on Grass	Effects on Broadleaf
	synthesis and normal cell division, leading to malformed growth and tumours.				
5	Systemic and contact; Photosynthetic inhibitors at Photosystem II, Site A. These chemicals interfere with photosynthesis and disrupt plant growth, ultimately leading to death.	Soil (Systemic)	Product specific. Check label prior to use.	Wilted and yellowed oldest leaves beginning at leaf margins, death in 7 to 10 days.	
		Foliar (Contact)		Yellowed oldest leaves, death within days.	Yellowed/bleached oldest leaves where spray contacts, death within days.
6	Contact; Photosynthetic inhibitors at Photosystem II, Site II.	Foliar	Minimal to none	Some leaf tip burn or white tissues possible.	Yellowed leaves in 2 to 4 days, death in 1 to 2 weeks.
9	Systemic; Inhibitors of EPSP synthesis. These chemicals inhibit the amino-acid synthesis.	Foliar	None	Wilted, yellowed leaves in 7 to 10 days. Newest growth is impacted first followed by the rest of the plant.	
10	Contact; Inhibitors of glutamine synthetase.	Foliar	Product specific. Check label prior to use	Wilted, bleached leaves in 3 to 5 days, death in 1 to 2 weeks.	
13	Systemic; Inhibits DOXP, which is needed in plant metabolism.	Soil	Yes	Bleached leaves, susceptible seedlings die shortly after emergence.	
14	Contact and systemic; Inhibits an enzyme of chlorophyll and heme biosynthesis.	Foliar (Contact)	Herbicide specific. Check label prior to use.	Some leaf burn at contact points or leaf edges.	Leaves yellowed and desiccated in 1 to 3 days.
		Soil (Systemic)		Bleaching and yellowing, death prior to or shortly following emergence	
15	Systemic; Lipid synthesis inhibitors (not ACCase inhibition). These chemicals inhibit the cell division and elongation in the seedling shoots	Soil	Yes	Reduced emergence, emerged plants stunted. Leaf rolling (grasses). Leaf tips compressed and crinkled (broadleaves). Buggy-whipping. Plants deep blue-green.	

Group	Mode of Action	Site of Uptake	Residual	Effects on Grass	Effects on Broadleaf
	before they emerge above ground.				
20	Systemic; **Auxin transport inhibitor allowing buildup in the meristem area**	Soil	Yes	Twisting of older leaves, new leaves fail to expand, plant death in 2 to 4 weeks.	
22	Contact; Cell membrane disrupters. Chemicals that disrupt the internal cell membrane and prevent the cells from manufacturing food.	Foliar	Minimal to none. Check label prior to use.	Leaves wilted within hours, desiccated in 1 to 3 days.	Leaves wilted in 1 to 3 days, desiccated and dead in 3 to 7 days.
26	Contact; Inhibitors of several plant processes including biosynthesis of fatty acids, lipids, and proteins. Photosynthesis also may be inhibited.	Foliar	None	Immediate cessation of growth, rapid desiccation of new leaves and purpling and yellowing of older tissues.	Abnormal growth (twisted stems, cupped leaves) in 2 to 10 days.
27	Systemic; Inhibits plant pigment biosynthesis and photosynthesis.	Foliar	Herbicide specific. Check label prior to use.	Some bleaching and whitening of leaves.	Leaves bleached and whitened in 2 to 10 days and death in 7 to 10 days.
29	Systemic; Inhibits cellulose biosynthesis	Soil	None	Seedlings fail to emerge	

Appendix D: Herbicide listed by groups, including active ingredients and common trade names

Herbicide Group	Active ingredients	Common Trade Names
NA	Acetic Acid	EcoClear
Group 1	clodinafop propargyl	Aurora, Horizon NG
	fenoxaprop-p-ethyl	Puma Advance, Tundra
	quizalofop-p-ethyl	Leopard, Assure II
	clethodim	Ninja Master, FBN Clethodim 240
	sethoxydim	Poast Ultra
	tralkoxydim	Bison, Liquid Achieve
	pinoxaden	Avenza, Axial
Group 2	AC 299, 263 120 AS	Altitude FX3
	imazamox	Solo/Solo Ultra Q, Viper
	imazamox + imazethapyr	Ninja Master, Odyssey
	imazapyr	Arsenal, Quasar
	imazethapyr	Kamikaze, Pursuit
	flucarbazone sodium	Everest 3.0 AG, Inferno Duo
	propoxycarbazone sodium	Olympus
	chlorsulfuron	Telar
	ethametsulfuron methyl	Muster
	halosulfuron	Permit
	metsulfuron-methyl	Ally Toss-N-Go, Escort
	nicosulfuron	Accent
	rimsulfuron	Hinge, Prism
	thifensulfuron-methyl	Barricade II, Retain SG
	tribenuron-methyl	Aviator ll, Express Pro
	triflusulfuron methyl	UpBeet
	halosulfuron	Permit
	florasulam	Broadband, Deathstar ll
	pyroxsulam	Exhilarate, Rexade
	thiencarbazone-methyl	Predicade, Varro
Group 3	ethalfluralin	Edge, Advantage
	trifluralin	Bonanza, Treflan
Group 4	dicamba	Banvel II, Oracle
	aminocyclopyrachlor	Navius FLEX, TruRange
	fluroxypyr	Battlestar, Deathstar II
	quinclorac	Clever, Ingenious
	aminopyralid	Reclaim II, Milestone
	clopyralid	Lontrel 360, Curtail M
	halauxifen	IPCO Exhilarate, Rezuvant XL
	picloram	Grazon XC, Tordon 22K
	2,4-D (Ester and Amine)	2,4-D, Grazon XC

Herbicide Group	Active ingredients	Common Trade Names
Group 4	dichlorprop (2,4-DP)	Desormone, Estaprop XT
	2,4-DB	2,4-DB, Caliber 625
	MCPA	MCPA, Curtail M
	MCPB	Clovitox Plus, Tropotox Plus
	mecoprop (MCPP)	Mecoprop-P, Sword
Group 5	desmedipham	Betamix ß
	phenmedipham	Betamix ß
	atrazine	Aatrex, Primextra II Magnum
	simazine	Princep Nine-T
	hexazinone	Velpar DF CU
	metribuzin	Meteor Sencor 480 F, Sencor 75 DF
	bromacil	Hyvar X/X-L, Krovar I
Group 6	bentazon	Broadloom, Hurrican
	bromoxynil	Buctril M, Leader
Group 9	glyphosate	Roundup, Start-Up
Group 10	glufosinate ammonium	Advantage, Liberty
Group 13	clomazone	Caravel, Command Charge
Group 14	carfentrazone	Aim, Prospect
	flumioxazin	Chateau, Fierce
	pyraflufen-ethyl	Blackhawk, ThunderHawk
	saflufenacil	Heat, Smoulder
	acifluorfen	Hurricane, Ultra Blazer
Group 15	EPTC	Eptam
	triallate	Avadex Liquid EC, Fortress MicroActiv
	metolachlor	Dual II Magnum, Metallica
	pyroxasulfone	Authority Supreme, Focus
Group 16	ethofumesate	Nortron
Group 20	dichlobenil	Casoron
Group 22	diquat	Advantage Diquat, Reglone Desiccant
Group 26	Pelargonic Acid	Beloukha
Group 27	pyrasulfotole	Infinity FX, Tundra
	topramezone	Certitude, Impact
	tolpyralate	Shieldex 400SC
Group 29	Indaziflam	Alion, Esplanade SC

Appendix E: Example of a Chemical Storage Sign

Appendix F: Example of a Site Treatment Sign

NOTICE OF PESTICIDE USE

WARNING

Treatment Date and Start Time:_____

DO NOT ENTER PRIOR TO:_____

Treatment Area:_____

_____

Pests to be controlled:_____

Pesticide Active Ingredients and PCP#:_____

_____

Applicator Name and Pesticide User Licence Number:_____

Telephone Number:_____

Precautions to Minimize Exposure to Pesticides:_____

_____

_____

Do not remove this sign before_____

For emergency medical information contact:

B.C. Drug and Poison Information Centre 1-800-567-8911 or 604-682-5050

Appendix G: Example of a Post-Treatment Inspection Report

Date of Treatment: _____ **Date of Post Treatment Evaluation** _____

Target Plants Treated (species or complexes): _____

Treatment Location (attach map or diagram if needed) _____

Total Area treated: _____

Non-Chemical Treatments Used: **YES** ☐ **NO** ☐

Treatment Method: _____

Pesticide Applied: **YES** ☐ **NO** ☐

Product Name	Active Ingredient	PCP Number	Application Rate (L/ha)

Application Method and Type of Application Equipment: _____

EVALUATION

Evaluation Site Location and Features (e.g., slope, aspect, soil type): _____

Applicator Observations at Time of Treatment: (e.g., equipment problems, uniformity of treatment, drift): _____

Post-treatment Data on Abundance of Pest Plants: (e.g., counts or estimates per unit area): _____

Pest Control Results: (e.g., reduction in % cover/density of unwanted plants compared to pre-treatment conditions): _____

Conclusions on Success of Treatment: _____

Recommendations to Improve Effectiveness: _____

Features/biota Examined for Non-target Impacts: _____

Environmental Impacts Observed: _____

Recommendations for Environmental Protection: _____

_____

_____