

Forest Management

Herbicide Reference Manual

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Alberta 

Forest Management Herbicide Reference Manual

Alberta Agriculture and Forestry
Forestry Division
Forest Stewardship and Trade Branch

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Telephone inquiries should be directed to the Forest Stewardship and Trade Branch at: (780) 427-8474

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Archived

1 Authority and Legislation Requirements

The Legislation information provided below is for information purposes based on common questions and issues realized in forest management. The information is not comprehensive and may change periodically. It is up to the proponent and their applicators to be knowledgeable on the current legislation and abide by it.

1.1 Introduction

This Herbicide Reference Manual is authorized under: Section 11(2)(b) of the *Environmental Code of Practice for Pesticides* “Proposals for herbicide use must be in accordance with the *Forest Management Herbicide Reference Manual*”; Section 5.1 of the *Forests Act* which allows a regulation to “.....adopt or incorporate with or without modification any rule, directive, code, standard or guideline that relates to any matter in respect of which a regulation may be made...”; and sections 122.1 (which defines reforestation) and 141.2 (1) (which allows for the Director to establish reforestation requirements) of the *Timber Management Regulations*.

This version, created in the period 2018-2020, updates and replaces the 2004 version of the *Reference Manual*.

The purpose of the *Reference Manual* is to:

- a. Ensure all participants in herbicide application for forest management are familiar with current herbicide use regulations and policies;
- b. Ensure all participants involved in forest management herbicide application understand the role of each party within the regulations, policies and approval process and understand each of their responsibilities within their respective roles;
- c. Guide the recognition of obvious and important violations of provincial legislation governing herbicide use on public land;
- d. Be able to complete appropriate and accurate herbicide inspections;
- e. Provide all participants with details of incident reporting and follow-up responsibilities; and
- f. Enable creation of a compliance mechanism to ensure forest companies and forest management professionals developing and implementing herbicide applications for forest management are accountable.

Any inquiries regarding the manual content can be directed to the Forest Stewardship and Trade Branch, Provincial Herbicide Coordinator at (780) 638-1076.

1.2 Pesticide Use Enforcement and Administration in Forest Management

1.2.1 Federal

Registration, Labelling and Classification of Herbicides is the jurisdiction of the Federal Government of Canada, Pest Management Regulatory Agency under the *Pest Control Products Act*. No pesticide may be legally applied in Canada without this registration/label process.

Responsibilities¹:

- a. Registers herbicides that can be used in Canada;
- b. Place restrictions/parameters on herbicide use;
- c. Re-evaluate pesticides on a 15 year cycle; and
- d. Promote sustainable pest management.

Applicable Federal legislation includes: *Pest Control Products Act*, *Pest Control Products Regulations*; *Pest Control Products Incident Reporting Regulations*; and *Pest Control Products Sales Information Reporting Regulations*.

1.2.2 Provincial

1.2.2.1 Alberta Environment and Parks

The allowable use of legally registered Pesticides on public land in Alberta is legislated through the *Environmental Protection and Enhancement Act (EPEA)*². Specific to the legislative authority given through *EPEA* are the following regulatory documents: *Pesticide (Ministerial) Regulation (PMR)*; *Pesticide Sales, Handling, Use and Application Regulation (PSHUAR)*; and *Environmental Code of Practice for Pesticides (ECP)*.

The role of Alberta Environment and Parks (AEP) is to develop standards policies and programs pertaining to pesticides and issuing Temporary Field Authorizations (TFA's) for AEP approved disposition use. This includes:

- a. Issuing a Service Registration to companies providing pesticide application services whether or not for hire or reward. The application process ensures the company employs a certified pesticide applicator, holds appropriate insurance, and has completed the compliance self-audit demonstrating they are aware of current regulatory requirements for pesticide use in Alberta.

¹ <https://www.canada.ca/en/health-canada/corporate/about-health-canada/branches-agencies/pest-management-regulatory-agency.html>

² http://www.qp.alberta.ca/1266.cfm?page=E12.cfm&leg_type=Acts&isbncln=9780779797738

- b. Determine the requirements/qualifications of individuals applying herbicides. This includes the requirement for Certified Pesticide Applicators and Authorized Assistants. Certification is administered by Lakeland College and ensures a standard of competence and understanding in Pesticide Application.
- c. Respond to Public inquiries and complaints.
- d. Conduct field Inspections and Investigations of Incidents with follow up enforcement action in the case of violations.
- e. Providing interpretation of legislation, Codes of Practice and policies and other assistance.
- f. Issuance of Temporary Field Authorizations (TFA's) on AEP and Alberta Energy Regulator (AER) dispositions.

1.2.2.2 Alberta Agriculture and Forestry

The use of herbicides for forest management on Crown Land is further restricted and permitted by Alberta Agriculture and Forestry (AAF): i.e. Area Managers and Senior Foresters. Approval considerations are:

- a. Location of Herbicide Application and mix-sites;
- b. Issuance of TFA's as required on unoccupied public land;
- c. Application of herbicide is consistent with the reforestation objectives specified by the proponent;
- d. Application of herbicide is consistent with the silviculture strategy/matrix;
- e. Adherence to Consultation requirements;
- f. Risk Management parameters are identified in the plan and are verified in the field;
- g. Approve plan amendments. These can be changes to plan (e.g. additional blocks), changes to herbicide used (e.g. switch from glyphosate to triclopyr) or changes to Herbicide methods (e.g. Aerial to Ground);
- h. Dispute Resolution;
- i. Receipt of final submission package for review;
- j. Confirmation of correct entry into Alberta Regeneration Information System (ARIS);
- k. Enforce application restrictions as required; and
- l. Referral to appropriate Division or Department.

1.2.2.3 *Alberta Indigenous Relations*

Indigenous Relations through the Aboriginal Consultation Office provides direction on Indigenous consultation. The Aboriginal Consultation Office is responsible for:

- a. Pre-consultation assessment;
- b. Information sharing;
- c. Determining the level of consultation;
- d. Exploring concerns;
- e. Verifying the record of consultation; and
- f. Determining consultation adequacy.

1.2.3 **Proponent**

Develop and implement silviculture prescriptions that ensures reforestation objectives are met with no adverse effects created. To this extent proponents:

- a. Develop and implement a risk management strategy to mitigate risk of off-target application of herbicides;
- b. Ensure a minimum level of experience in herbicide application;
- c. Develop prescriptions appropriate for the objectives required by the silviculture strategy;
- d. Report activities to the Province of Alberta in a timely Manner;
- e. Report Off Target Applications to AEP (for investigation) and AAF (to assess impacts to landbase); and
- f. Consult with stakeholders on the herbicide application.

Roles and Responsibilities Summary

Forest Company

Obtain herbicide use approval from Alberta Agriculture and Forestry.

Follow content and intent of Forest Management Herbicide Reference Manual.

Identify risks and strategies to mitigate them.

Ensure applicators comply with product labels.

Report Activities to the Province of Alberta.

Consult with Stakeholders.

Self-Report.

Applicator

Comply with product label directions.

Follow content and intent of all legislation including the *Environmental Code of Practice for Pesticides*.

Maintain a valid Pesticide Service Registration.

Ensure Applicator Certification requirements are met.

Alberta Agriculture and Forestry (AAF)

Maintain and update Forest Management Herbicide Reference Manual.

Review and approve herbicide proposals.

Enforcement through limiting the scale of the Forest Company's herbicide program or withholding approval.

Audit completed projects.

Alberta Environment and Parks (AEP)

Maintain and update Provincial legislation and policies.

Enforcement through warning letters administrative penalties and charges.

Indigenous Relations (ACO)

Pre-consultation assessment.

Level of Consultation.

Consultation Adequacy.

1.3 Legislation

1.3.1 Federal Legislation - Pesticide Label Requirements

1.3.1.1 *Pest Control Products Act (Canada)*

The *Pest Control Products Act* is administered by Health Canada, Pest Management Regulatory Agency. The *Pest Control Products Act* and its regulations cover:

- a. **Registration:** The registration process permits pesticides for use and sale by evaluating human health, environment and value to determine if there is acceptable level of risk or if mitigation measures can ensure an acceptable level of risk.
- b. **Labelling:** Labels are a legal document that serves the important role of informing users of a products proper use and its potential hazards (Health Canada, Label Process Series LPS2011-01, Pesticide Labelling Framework). It reflects information collected during the registration process.
- c. **Classification:** Pesticides are placed in one of four federal use categories: Restricted, Commercial (including Agricultural, Forestry, or Industrial), Domestic, or Manufacturing.

All pesticides used in Canada must be registered under the *Pest Control Products Act* (a registration number will appear on each pesticide label).

Pesticides used in forestry fall in the following product categories defined by Health Canada:

1.3.1.1.1 Forest Management - Restricted

These products can be used for treatment of more than 500 hectares of a wooded area; or of a site to be planted to a forest, and may include aerial application. All products with designation for “forest” or “forest management” uses are classified as Restricted. The label of these products bear the statement: “This product is to be used only in the manner authorized; consult local pesticide regulatory authorities about use permits which may be required.” In Alberta, persons applying pesticides for forest management on Crown lands must obtain a Pesticide Service Registration from AEP and an Authorization from AAF.

1.3.1.1.2 Woodlands Management - Restricted

These products can be used for the treatment of no more than 500 hectares of a wooded area; or of a site to be planted to forest. A site is defined as a continuous monoculture without a break in cultural practices or management stage. A continuous site of 1000 hectares in area, therefore, cannot be divided into several blocks of 500 hectares. Products with directions for Woodland Management can be applied by air only if the label specifically indicated aerial application as a restricted use. The restriction instructs the user to consult local pesticide regulatory authorities about use permits that may be required.

1.3.1.1.3 Woodlands Management - Commercial

Commercial pesticide products for woodland management can be used for treatment of no more than 500 ha of a wooded area, as follows:

- a. to woodlands only by ground equipment; and
- b. in treed areas such as municipal parks by ground treatment only.

Any information concerning pesticide registration is available from the Pest Management Regulatory Agency by calling 1-800-267-6315 or on the Health Canada website³.

1.3.2 Provincial Legislation

1.3.2.1 Alberta Environmental Protection and Enhancement Act (EPEA)

The Act was passed into law in 1993 and replaced eight separate Acts. Provisions for regulations of pesticides are set out in Part 8 of the *EPEA*, with the enforcement provisions of the entire Act contained in Parts 10 and 11.

Part 8 of the *EPEA* set out the framework for the regulation of sales, use, application, handling, storage, transportation and disposal of all pesticides. Two associated regulations deal with pesticides: *Pesticide (Ministerial) Regulation (AR 43/97)* and *Pesticide Sales, Handling, Use and Application Regulation (AR 24/97)*.

Copies of *EPEA*, the *Pesticide (Ministerial) Regulation (AR 43/97)* and the *Pesticide Sales, Handling, Use and Application Regulation (AR 24/97)* are available from Queen's Printer bookstore in Edmonton (780) 427-4952 or can be downloaded from their website⁴.

1.3.2.2 Environmental Code of Practice for Pesticides

The *Environmental Code of Practice for Pesticides* is incorporated by the *Pesticide (Ministerial) Regulation* and the *Pesticide Sales, Handling, Use and Application Regulation* under the authority of Section 36 of the *Environmental Protection and Enhancement Act*. Pesticide applicators and Pesticide Service Registration holders affected by this code must follow all requirements to ensure that their activities are in compliance with Alberta's environmental laws. The Code of Practice provides specific details and requirements regarding the handling, use and application of pesticides. All pesticide applicators and Forest Management companies using herbicides are responsible for following the intent and content of the Code.

³ <https://www.canada.ca/en/health-canada/services/consumer-product-safety/pesticides-pest-management.html>

⁴ <http://www.qp.gov.ab.ca>

Copies of the *Environmental Code of Practice for Pesticides* are available from Queen's Printer bookstore in Edmonton (780) 427-4952 or in Calgary (403) 297-6251 or can be downloaded from the Alberta Queen's Printer website⁵.

1.3.3 Pesticide Service Registration

Under the pesticide regulations, all Pesticide Services offering or providing a service in Alberta must be registered in accordance with the *EPEA*. A Pesticide Service is a business, government agency, organization, or an individual that:

- Provides, or offers to provide, a pesticide application service whether or not for hire or reward;
- Is applying pesticides on a right-of-way;
- Is applying pesticides on a public land, including land owned by a local authority. Public land meaning federal, provincial, municipal government or other local authority;
- Uses or applies pesticides for forest management.

Pesticide Service Registration is intended to:

- Ensure the individual or business offering a pesticide service has met the provincial regulatory requirements;
- Assist in maintaining communication between the service registration holder and AEP;
- Facilitate rapid complaint response;
- Facilitate enforcement action where necessary.

A Pesticide Service must employ at least one certified pesticide applicator in the appropriate class. The types of services provided will be limited to those for which the applicator(s) is/are certified. Specific regulatory requirements can be found within the *Environmental Code of Practice for Pesticides* and within the Pesticide Service Registration application. A company or individual can apply for a Pesticide Service Registration by obtaining an application form from the AEP website⁶.

1.3.4 Applicator Certification Requirements:

A pesticide applicator certificate⁷ is required for:

1. Anyone applying Schedule 1 or 2 (Restricted and Commercial class) Pesticides other than a commercial agriculturalist using or applying pesticides on land he/she owns;

⁵ <http://www.qp.gov.ab.ca>

⁶ <https://www.alberta.ca/pesticide-service-registrations.aspx>

⁷ <https://www.alberta.ca/using-pesticides-applicator-certification-program.aspx>

2. Anyone applying Schedule 3 (Domestic Class) Pesticides;
 - a. In a rental dwelling;
 - b. In the common indoor and outdoor areas of condominium's;
 - c. In or on the grounds of a school, hospital, nursing home, or day-care facilities;
 - d. On public lands;
 - e. For hire or reward;
3. Anyone applying a pesticide where the label specifies for use by "certified or authorized applicators".

1.3.4.1 *Classes of Applicator Certification*

There are different classes of applicator certificates. The ones typically used for forest management purposes are:

- **FORESTRY:** This class includes the use of pesticides by ground application in forest management operations and/or silviculture, forest seed orchards, outdoor nurseries and plantations.
- **AERIAL:** This class includes the use of pesticides applied by aircraft.

1.3.4.1.1 Pesticide Applicator Records Requirements

All applicators or assistants must keep records of their pesticide applications for a five-year period. These records must be available upon request of a pesticide inspector. The records will be created as per *Pesticide Ministerial Regulation Section 11* in part including:

1. The name of the person for whom the pesticide was applied;
2. The location where the pesticide was applied;
3. The year, month, day and time at which the pesticide was applied;
4. The name of the pest and purpose for which the pesticide was applied;
5. The approved common name or trade name of the pesticides and the *Pest Control Products Act (Canada)* registration number;
6. The application rate and total quantity of the pesticide applied;
7. The method of application;
8. If the pesticide was applied outside an enclosed structure, the meteorological conditions prevailing at the time of the application, including temperature, humidity, precipitation, and approximate wind speed and direction; and

9. The location and distance of any pesticide used or applied within 30 horizontal metres of an open body of water.

1.3.5 Requirements for Pesticide Storage

The *Pesticide Sales, Handling, Use and Application Regulation 24/97* (Section 23) states that a person who stores a pesticide listed in Schedule 1 or 2 shall comply with the requirements.

If only enough of the pesticide is kept at the mixing and loading site to complete the spray operations for that area within a 24-hour period, then this may be considered a temporary pesticide storage facility. If pesticide products are stored in a vehicle this would be considered mobile storage. Mobile storage requirements that have been described by AEP can be found on Alberta Open Government Website⁸.

1.3.5.1 Spill Clean-up and Emergency Response Information

Part 5 of the *EPEA* empowers the government to prevent and control the release of substances into the environment. It ensures that the unlawful, unauthorized, or accidental release, as well as those exceeding prescribed amounts are quickly remedied to protect the environment. The Act imposes a requirement on companies to immediately report known substance releases so that control and clean-up are prompt and effective.

Those responsible for released substances have a duty to immediately report known releases (OTA's) to AEP and AAF and take remedial action. These measures include stopping the release, clean-up of the release, removal or disposal of the substance and restoring the environment to a satisfactory condition.

Emergency response equipment, including spill clean-up and safety equipment, is required at both the storage facility and the mixing and loading site.

It is important to note that the requirement to report a substance release to AEP is NOT met by reporting said release to AAF and vice versa. Therefore, should a substance release occur it **MUST** be reported to both AEP and AAF, by the applicator and forest management professional, respectively. In the event the release is noticed after herbicide operations have ceased, the forest management professional will report to both AEP and AAF.

The determination if a substance release has occurred can be done with assistance from AAF staff.

For all pesticide mixing and loading sites, the applicator must ensure that a contingency plan for the containment and clean-up of pesticide release is available and understood by personnel working at a pesticide mixing and loading site.

1.3.6 Special Use Approvals

When a company is proposing to use, store or apply pesticides in a manner not consistent with the *Environmental Code of Practice for Pesticides (ECP)*, A Special Use Approval is required. This approval

⁸ <https://open.alberta.ca/dataset/adea7786-5eef-4a2c-83a8-88133e674b10/resource/79b5c8c6-eafd-4138-a9d2-28a1a84eca9b/download/mobilepesticidestorageguidelines-2013.pdf>

is granted through AEP. The application form for special use approval can be found on the Alberta website⁹.

An example of this maybe a desire to apply a pesticide within a required no deposition zone as per the ECPP.

Under the ECPP open bodies of water are protected by No-Deposit Zones where no deposition of pesticides is permitted. The width of No-Deposit Zones varies with the active ingredient being applied. No-Deposit Zones are not buffers, therefore when developing risk mitigation processes forest management professionals should view No-Deposit Zones as part of the sensitive environment being protected and select risk management procedures accordingly.

The *Code* provides direction on no-deposition zone requirements.

An “open body of water” is defined in the *Pesticide Sales, Handling, Use and Application Regulation* as the bed and shore of an irrigation canal, drainage canal, reservoir, includes lakes, streams, rivers, irrigation canal, drainage canal, reservoir, river, stream, creek, lake marsh or other body of water but does not include the following:

1. Waterworks systems, reservoirs, lakes, marshes or other bodies of water that are completely surrounded by private land, that have an area of less than four hectares and have no outflow of water beyond the private land;
2. Reservoirs, lakes, marshes or other bodies of water that are located on public land, that have an area of less than 0.4 hectares, and have no outflow of water;
3. Irrigation and drainage canals that are completely surrounded by private land and have no outflow beyond the private land;
4. Roadside ditches;
5. Wastewater systems;
6. Storm drainage systems; and
7. Dry streams having a bed and shore averaging 0.5 metres or less in width within the boundaries of the treatment area.

A “bed and shore” is also defined in the *Pesticide Sales, Handling, Use and Application Regulation* to mean land that is or has been covered by water to the extent that: No vegetation grows on the land; The vegetation that grows on the land is aquatic vegetation that must be partially submerged in water for part of its lifecycle to survive.

⁹ <https://www.alberta.ca/assets/documents/ep-pesticide-special-use-approval-application.pdf>

2 Submission Requirements

2.1 Introduction

Herbicides are an important tool in establishing and growing forests in Alberta. It is important that they are used only where needed to meet specific forest objectives. To this end, it is a requirement that AAF review and approve herbicide applications for forest management purposes on public land. This manual provides guidance in what AAF requires when herbicides are a proposed silviculture treatment by a forest company or the Forest Resource Improvement Association of Alberta (FRIAA).

All herbicides intended for use in forest management in Alberta must be registered and have an approved label from the Pest Management Regulatory Agency (PMRA), of the Federal Government of Canada. Herbicide products not registered by the PMRA will not be approved for use by Alberta. Herbicides used operationally for forest management in Alberta must also be approved for operational use by AAF. Special consideration may be given to some herbicide products that are in the testing stage with the intent of receiving a label and registration. Applications for approval for experimental use of these technically unregistered herbicide products are to be vetted through the Provincial Herbicide Coordinator.

Herbicide use as a strategy within a reforestation program (as defined under section 143.1 of the *Timber Management Regulation*) is considered a component of the Silviculture Annual Operating Plan and as such, Letters of Authorization may be signed only by the Forest Area Manager and the Senior Area Forester

2.1.1 Designated Employee

For the purpose of the processes in this manual, a designated employee of AAF is first a forest management professional that is a duly assigned staff member of an AAF Forest Area office. The designated employee may also include the Provincial Herbicide Coordinator, or anyone assigned or sanctioned by the Executive Director, Forest Stewardship and Trade Branch (FSTB), as a designated employee within the processes in this Manual.

2.1.2 Understanding the Legislation

All participants in the delivery or oversight of a herbicide program, are required to be aware of the details and requirements of Section 11 of the *Environmental Code of Practice for Pesticides*.

2.2 Approved Herbicides

Herbicide formulations contain active ingredients. An active ingredient is the chemical component that is the primary effecting agent to the plant species treated. There are three active ingredients in herbicide

products approved for use in forest management in Alberta: Glyphosate, Triclopyr, and Imazapyr. The following are the conditions under which each is allowed for use in forest management.

2.2.1 Glyphosate

- a. Required to follow label parameters and legislation for use in forest management or in a forest setting. Develop risk management protocol, including weather parameters, that demonstrates a sound understanding of risk and mitigation.
- b. For use in ground or aerial application strategies.
- c. Buffers must meet label requirements or guidelines and ensure that No-Deposit zones will not be compromised.
- d. May only receive a maximum of two effective herbicide applications, where approved, on the same treatment area.

2.2.2 Triclopyr

- a. Required to follow label parameters and legislation for use in forest management or in a forest setting. Develop risk management protocol, including weather parameters, that demonstrates a sound understanding of risk and mitigation.
- b. For use in ground or aerial application strategies.
- c. Buffers must meet label requirements or guidelines and ensure that No-Deposit Zones will not be compromised.
- d. May only receive a maximum of two effective herbicide applications, where approved, on the same treatment area.

2.2.3 Imazapyr

- a. Required to follow label parameters and legislation for use in forest management or in a forest setting. Develop risk management protocol, including weather parameters, that demonstrates a sound understanding of risk and mitigation.
- b. For use in ground application only.
- c. Buffers must meet label requirements or guidelines and ensure that No-Deposit Zones will not be compromised.
- d. Registered and approved herbicide products containing the active ingredient Imazapyr may only receive a single application and are not approved for multiple applications.

2.3 Project Categories in Forest Management

There are two categories of herbicide projects in forest management and governed by this process: operational projects; and research, testing and evaluation projects.

2.3.1 Forest Industry Operational projects

Herbicide is applied using aerial or ground delivery on harvested openings to meet reforestation objectives as part of an approved FMP and approved silviculture plan. This category also includes silviculture treatments using herbicides delivered through the FRIAA.

2.3.2 Research, Testing, Evaluation of other Herbicides Registered for Forestry use and Seed Orchard projects

- a. **Seed Orchards/Genetic Sites:** Herbicide is usually applied with ground delivery, but occasionally aerial, for control of weeds and grass. This may occur periodically, but not usually annually.
- b. **Research Projects:** Herbicide is usually applied with general ground delivery or single-tree injection. There may be occasional aerial application projects. Herbicide is employed mainly to affect the composition or state (create stress, standing dead) of the stand in order to mimic certain conditions to meet research objectives.
- c. **Testing of Herbicide Leading to Registration:** Herbicide products in development require field testing at a point in that process. There are occasional requests received by Alberta to approve these types of research projects for field testing.
- d. **Evaluation of other Herbicides Registered for Forestry Use:** Herbicides registered for forestry use in Canada where the herbicide is being applied for evaluation purposes in accordance with an evaluation plan developed by the proponent and authorized in writing by Alberta.

2.4 Approval of Forest Industry Operational Projects

2.4.1 General Considerations

2.4.1.1 Acceptable Openings

Only those harvested openings that are planned and intended to have their herbicide treatment completed in the same treatment season will be considered for approval. Areas to be treated must already be harvested at the time of proposal. Proponents will clearly identify the total amount of hectares that are intended to be treated in the upcoming spray season. This will be supported by the submission of a list summarizing the previous four years of herbicide programs by year of application, herbicide active ingredient, method of application, and area treated (refer to **Appendix 1**). For programs deemed too large in scope to be operationally feasible, AAF will request either a refinement of proponents programs or a

description of what has changed to achieve the hectares being proposed. If hard copies are submitted, AAF will require three copies of the submission.

2.4.1.2 Changes to Program

Any changes, including but not limited to, additional areas, different objectives, different chemical and different application dates to an initially approved herbicide program in a treatment season will require a formal amendment. All amendments must be justified and submitted to AAF in writing. The requirements of an amendment request is at the discretion of the forest area and shall be discussed prior to submission. The changes required by the amendment may require further public and Indigenous consultation.

2.4.1.3 Multiple Applications

Multiple applications of herbicide to the same treatment area within the standard 14 years of the reforestation obligation, the Reforestation Phase, are restricted as follows:

- a. The forest operator must make separate reference within the proposal for approval to apply herbicides a second time to the same treatment area. This application for approval requires an explanation of the initial application's failure to meet the treatment objective and justification for the intention to apply herbicides more than once. More than two (2) treatments to a specific area may be approved provided that they are justified to the satisfaction of the local area.
- b. Registered and approved herbicide products containing the active ingredients glyphosate and triclopyr are the only two eligible herbicides for multiple herbicide applications, where approved, on the same treatment area. These blocks must be identified and justification provided.
- c. Registered and approved herbicide products containing the active ingredient imazapyr may only receive a single application and are not approved for multiple applications.
- d. The number of herbicide treatments is commensurate with the clock start date. If the clock start date gets reset due to disturbance, this resets the herbicide treatments back to zero.

2.4.1.4 Bag Lines

Where forest operators have chosen to use plastic bags as boundary markers for buffering areas from herbicide treatment, these bags must be removed from the treated openings in accordance with the Letter-of-Direction from the Executive Director, (**Appendix 2**) Forest Stewardship and Trade Branch.

2.4.1.5 Other Values

Wildlife, fisheries and biodiversity values must be addressed. Forest Management Plan (FMP) required components such as forest retention, live trees, retained understory vegetation, open bodies of water, buffers and sensitive areas must be identified. Maps of treatment blocks showing identified sensitivities (eg. Mineral Licks, bear dens, identified nesting areas, berry picking patches, required retention, areas prone to slumping, areas managed for specific objectives as identified in the FMP etc.), where herbicide should not be applied or applied in a special way, must be included.

2.4.2 Content Requirements of the Proposal

The applicant is required to demonstrate a level of understanding acceptable to AAF of the ecological associations inherent in the site being managed that builds toward the justification for choosing to apply vegetation management strategies. Proposals for herbicide use are required to contain pertinent details that clearly illustrate the need for the use of herbicide to meet the reforestation objective and the justification for that choice of strategy. This section describes in detail the required content. A herbicide proposal checklist is provided in **Appendix 1** for guidance.

2.4.2.1 Treatment Objectives

Identify and justify the purpose of the treatment proposed, considering the objectives of the silviculture prescription and the relationship of vegetation management to meeting those objectives. There shall be a clear link in this discussion to the larger objectives or projections made in the FMP, the regeneration standards required to be met, and any other values and objectives that may be driving the operational decisions being proposed. Examples of Treatment objectives include, but are not limited to:

- a. Conifer release/site preparation;
- b. Operational research;
- c. Control of specific competition;
- d. Wildlife habitat improvement/maintenance.

This section shall also make clear to Alberta why herbicide is the priority choice over other available methods of vegetation management.

2.4.2.2 Provisions for Risk Management

Risk is defined as the “*chance or possibility of danger, loss, injury or other adverse consequences*” (*Oxford English Dictionary*). Risk can generally be categorized into two different types when dealing with herbicides:

- **Herbicide Release:** an unauthorized release due to spills, leaking equipment (nozzles/booms), accidents.
- **Off-Target-Applications (OTA):** movement of the herbicide off of the approved application site (accidental, unforeseen) or applications of herbicide to an area that is not approved.

Through experience and continual developments in equipment technology, risk management techniques can be incorporated into spray programs. The applicant is responsible for identifying risks associated with the proposed operations and how they intend to mitigate these risks. This discussion must be articulated in the herbicide use proposal.

The following must be addressed:

- a. Pre-application meetings with the proponent and applicator company(ies);

- b. Equipment to be used on the project, including nozzle and boom configurations;
- c. Reconnaissance flights;
- d. Harvested Block perimeters of areas of herbicide applications;
- e. No Deposition Zones and Buffers (adjacent to sensitive areas, in-block retention or opening edge);
- f. Spray buffers set based on risk of drift potential;
- g. Flagging/bagging of spray buffers (especially along watercourses) to ensure they are clearly visible to the pilot;
- h. Timing of aerial spraying adjacent to buffers;
- i. The use of block monitors;
- j. The use of global navigation satellite systems (e.g. the Global Positioning System or GPS);
- k. Specific strategies to deal with environmental factors including wind, temperature and relative humidity;
- l. Certified Applicators. Proof of Certification should be available onsite if requested;
- m. Service Registration requirements. Service Registration information should be available onsite;
- n. Additional strategies to minimize or mitigate negative outcomes from the herbicide project.

The applicant is expected to be familiar with the area proposed for herbicide application that they are able to identify risks related to forest values and articulate appropriate and reasonable strategies (as assessed by AAF) to minimize or mitigate negative outcomes from the herbicide project. This discussion is required to be part of the herbicide use proposal submission.

2.4.2.3 Description of Treatment Area

The proposal is required to contain details regarding which specific openings are intended to be treated in a given year. This information will meet the following specifications:

- a. Digital, georeferenced map or maps showing all openings intended to be treated in the current timber year in the timber disposition or general area (compartment, working circle, district). Map scale to coincide with extent of information included per map sheet. Suggested map scales range from 1:50,000 to 1:100,000.
- b. A base map layer or a base ortho-rectified digital imagery layer with the shape file for each opening, at a scale no smaller than 1:20,000; suggested scale ranges are between 1:2,000 and 1:10,000. Those forest operators that wish to deviate from this specification may also choose to represent their openings with the best information available this can include “as-built” maps, or delineated, digital aerial photographs that depict the opening as harvested. In all cases the

watercourses, bodies of water, identified buffers, and sensitive areas (eg. traditional berry picking areas, recreation areas, excessive slopes, soil erosion or slumping areas) must be identified and included. If further deviation from this specification is desired, this must be negotiated with the Forest Area.

- c. A map of a scale acceptable to the Forest Area showing the location of all the known mix and loading sites proposed for the project. The access layer and hydro layer must be shown on these maps. These layers will be what was approved in the FMP, or in the case of improvements/enhancements, the best available data.
- d. Delineate on the detailed opening maps and/or images those areas that will not receive herbicide application including: buffers to open bodies of water, buffers left after harvesting operations (including lesser vegetation buffers), and areas of the opening that are intended to receive a different application strategy than the rest of the opening (e.g. reduced application rate, ground vs. aerial). Delineate all sensitive areas, including, but not limited to: traditional berry picking areas, recreation areas, excessive slopes, soil erosion or slumping areas. Delineate those areas intending to be buffered from herbicide application for special wildlife habitat, fisheries or biodiversity sensitivity reason (e.g. bear dens, mineral licks, rare species, calving areas). Delineate retention patches.

2.4.2.4 Detailed Opening Description

AAF requires the submission of detailed information summarized in a table format similar to the sample table in **Appendix 3**. All of the information shown in the sample table must be included in the submission and is described briefly as follows:

- a. Opening Number – the ARIS identifier of the harvest area that is receiving herbicide treatment. Distinguishes the treatment area as a locatable polygon on the ground.
- b. Openings Proposed for a Second Herbicide treatment
- c. Total Block Area - the total area of the opening, in hectares, from the original ARIS record.
- d. Strata Standard – the strata standard the opening had been declared to after harvest and on which growth and yield trajectory it is being managed.
- e. Treatment Strategy Section – this is a section of the detailed proposal table that contains elements of the herbicide project that Alberta requires as relevant data for its review leading to approval:
 - i. Treatment Objective – list the objective desired to be achieved utilizing herbicides. Categories include, but are not limited to:
 - Conifer seedling release
 - Suppression of grass
 - Stem density reduction

- ii. Target Species – list all the species desired to be controlled by use of herbicide. Categories include, but are not limited to:
- Aw (Trembling aspen)
 - Pb (Balsam poplar)
 - Bw (White birch)
 - Alder
 - Willow
 - Low brush species
 - Grasses (includes *Calamagrostis* sp.)
- iii. Treatment Area – Is the estimated area proposed for treatment in Hectares. For the purposes of proposing and recording the number of hectares treated, one hectare treated equals one hectare.
- iv. Active ingredient – list the active ingredient for the herbicide formulation planned to be used. Categories are the *three* active ingredients of herbicide approved for forest management:
- Glyphosate
 - Triclopyr
 - Imazapyr
- v. Herbicide Product Name – the labelled herbicide product(s) intended to be used on the project. Facilitates tracking the Label information by Alberta. Examples are: Weedmaster, Vantage Plus Max II, Vision Max.
- vi. PCP Number – The unique Registration Number assigned to the product by Health Canada and the Pest Management Regulatory Agency.
- vii. Application Rate – the planned amount of herbicide product (mixed) in litres per hectare planned to be applied. This amount may not exceed the Label recommendations.
- viii. Method of Application – list the method of application intended to be used operationally in the season of application. Categories include, but are not limited to:
- Aerial (rotary wing or fixed-wing aircraft)
 - Ground – distinguish type of application:
 1. Spot (spray wand and backpack)
 2. Boom (on quad or skidder)
 3. Individual tree (injection and backpack).
- ix. Surfactant – if a surfactant is being employed as part of the herbicide formulation, list type (oil, diesel, etc.) and the product name if available.

- x. Additional Information – list any additional relevant information that provides Alberta with greater perspective into the project, its schedule of delivery, or anticipated risks to be managed.

2.4.3 Other Considerations

2.4.3.1 Mix Sites

Mix sites should be pre-identified within the project submission document. The location of known mix sites, the disposition holder, and identified affected third parties shall be included in the submission document. Third party approval must be obtained and submitted to AAF prior to application. Mix sites occurring on third party dispositions (e.g. gas and oil dispositions) require a Temporary Field Authorization by the appropriate responsible government agency (AEP) and third party approval (proof of consent). Mix sites occurring on a forest companies Timber Disposition when approved as part of the herbicide proposal, do not require TFA. This includes old/new harvest areas and the forest company's dispositions such as DLO's and SML's. Where mix sites change or are unknown at the time of document submission, third party approval (proof of consent where applicable) and a TFA is required.

2.4.3.2 Watercourses

The classification of watercourses shall identify and classify watercourses to the same detail as required in the Operational Ground Rules specific to the proponent's disposition.

2.4.4 Restricted Herbicide Application

Safe delivery and successful risk management of a forest herbicide program can be significantly affected by the size of the project, the unpredictable weather-window, plus other unknown operational issues that may occur. AAF requires that forest operators intending to treat with herbicides have the experience within their companies to be able to successfully manage all the risks and unknowns in their projects such that the risk of accidents in herbicide application are minimized or eliminated. To this end, forest operators utilizing herbicide treatment for the first time will be limited to no more than 1,000 hectares approved in the first treatment season and 2,000 hectares in the second treatment season.

The Restricted Activity requirement is not inherent to the company that has completed herbicide programs in the past, but rather to the knowledge within the individual(s) that have managed herbicide programs on behalf of the company. To this end, a company that does not have people managing programs with a minimum of 2 years' experience directly related to herbicide application will be limited to the restricted herbicide application program until such experience is gained.

The occurrence of Off Target Applications may result in restricted herbicide application, regulatory penalties and/or fines under the *Environmental Protection and Enhancement Act*, the *Forests Act*, and/or the *Timber Management Regulation*. Companies will report on the previous years of Off Target Applications by type, number, area affected and applicator.

2.5 Stakeholder Involvement and Notification Requirements

Stakeholder involvement and notification is required for all herbicide use proposals on public lands. Seeking stakeholder involvement is the responsibility of the applicant. The stakeholder involvement process would ideally be initiated by the applicant in advance of the herbicide use proposal submission to Alberta, but this process, or parts thereof, may also occur simultaneously. This Section details the requirements of this process.

Stakeholder Involvement in this process is divided into four distinct categories as follows:

- a. General Public who may be directly impacted by the proposed treatment.
- b. Overlapping Tenure or Disposition Holders.
- c. Indigenous Communities who may be directly impacted by the proposed treatment.
- d. Forest Residences directly impacted by the proposed treatment.

Each of these categories has a unique set of requirements that the applicant must follow.

2.5.1 General Public

The applicant is required to give members of the general public who may be directly impacted by the proposed treatment the opportunity to review and forward any project specific concerns or comments of the herbicide use project being proposed. The process is as follows:

- a. The applicant's public involvement program must provide a 30 calendar day period in which the general public would be engaged and have the opportunity to submit concerns and comments. The 30 calendar day period begins on the date of the first advertisement. Any meetings, tours or open houses delivered as part of the public involvement program must allow at least 15 calendar days for public comment afterwards, so should be scheduled accordingly. All advertising efforts must be made a minimum of two weeks prior to any scheduled public involvement event such as an open-house or tour.
- b. The general public may be notified of the herbicide proposal through a number of options at the discretion of the applicant. These options include, but are not limited to:
 - i. Local or regional newspapers – the appropriate level of exposure, as determined by Alberta, of advertisements needs to be managed where newspapers are weekly or bi-weekly;
 - ii. Local or regional radio advertisements – an appropriate level of exposure, as determined by Alberta, is expected;
 - iii. Electronic – company websites, social media;

- iv. Posters;
- v. Mail flyers; or
- vi. Any combination of the above.

Alberta requires the applicant to show that they have committed to an appropriate level of notification to the general public within a reasonable vicinity of the herbicide project's proposed location. Advertising efforts will be documented in the herbicide use proposal, including copies of advertisements. It is expected that all communities closest to the location of the proposed herbicide application will be informed via appropriate media.

- c. The advertisement's content, regardless of delivery strategy chosen, must:
 - i. identify that the proposed project uses herbicides;
 - ii. contain the area/location for the proposed treatment, minimally expressed as Township/Range/Meridian. More detailed methods may be used as approved by the Forest Area as long as the locations of spray can be clearly understood by the public;
 - iii. identify the application method (aerial or ground);
 - iv. list the timing of the application (general week(s) of intended application); and
 - v. include a strategy for the public to be able to contact the applicant directly and without difficulty. This may be appropriately accomplished with a toll-free phone number (1-800...) or an e-mail address.
- d. Alberta requires, as a minimum, that the applicant ensures that the general public has access to a contact phone number directly to the proponent. An option available to the proponent is a toll-free phone number (eg: 1-800...). The following options for a liaison strategy are available, but not limited, to the applicant:
 - i. Open house – an event in a central facility scheduled at a specific time giving the opportunity for the public to attend and be exposed to the details of the proposal;
 - ii. Individual meetings, one-on-one;
 - iii. Distributing proposal background materials by mail or electronic media (email, social media); or
 - iv. Specifically scheduled field tours.

It is left to the applicant's discretion how they choose to liaise with the general public after initial contact should issues arise, but Alberta requires that the general public have been given fair opportunity by the applicant to submit and discuss comments and concerns regarding the proposal.

- e. The applicant must submit to the Forest Area a summary of any concerns received from the general public liaison and how these concerns have been mitigated or addressed. If there are requirements to amend the original proposal, the applicant would do so at this point in the process. If no legitimate site-specific concerns have been identified, the approval process will move on to the next step in review.

2.5.1.1 Public Notification

Once the program is approved in writing by AAF, a second advertisement in the local newspaper is required. The company must notify the public of the purpose and scope of the approved project in the same manner as the initial notification a maximum 90 days and a minimum of 72 hours prior to the commencement of the herbicide project. The advertisement must include notification of approval, timing and location of the program, application method and type of herbicide.

2.5.1.2 Notification to Alberta

A minimum two business days prior to starting herbicide application in a given area the company must notify the local area office, in writing, of the project commencement and contact information for the on-site supervisor. Additional advance notice may be required if operations are to commence upon weekends or holidays. E-mail notification with the corresponding send and read receipt is an acceptable form of notification.

2.5.2 Overlapping Tenure or Disposition Holders

2.5.2.1 Tenure Holders

Overlapping tenure holders in this process are other forest companies with timber allocations on the same landbase as the applicant. Input of other tenure holders must be obtained prior to the formal involvement of the general public so appropriate input may be addressed in the development of the treatment prescription.

2.5.2.2 Disposition Holders

Disposition holders are those individuals or companies that hold active public land dispositions either on the area planned for herbicide application or immediately adjacent, or within a relevant proximity as deemed by the applicant. It is the applicant's responsibility to research all active dispositions within relevant proximity, including any other parties found active in the area of planned herbicide application. Each Disposition holder or discovered activity must be notified at least 10 days prior to the start of the project. The date and method of contact shall be documented. If confirmation of receipt cannot be provided, then the proponent requires evidence of two different methods of attempting to contact the disposition holder. Communication shall include the location, method of application, schedule of application, herbicide used, and a contact number of the applicant.

The applicant must submit to the Forest Area a summary of any concerns received from tenure or disposition holders, and how these concerns have been mitigated or addressed in the proposal. If there

are requirements to amend the original proposal, the applicant would do so at this point in the process. If no legitimate concerns have been identified, the approval process will move on to the next step in review.

2.5.3 Indigenous Communities

It is the responsibility of the applicant to be aware of the Government of Alberta's Policy on Consultation with First Nations on Land and Natural Resource Management (2013), The Government of Alberta's Policy on Consultation with Metis Settlements on Land and Natural Resource Management (2015), and their associated guidelines and how the requirements might affect their herbicide use proposals. Alberta expects consultation to be conducted in accordance with these Indigenous consultation policies and guidelines. Details may be discussed and guided through the Forest Area. The Indigenous Consultation Policy and Guidelines are subject to periodic review and change and it is the proponent's responsibility to be aware of the current Guidelines and adhere to them. The current versions can be found on the Alberta website¹⁰.

Where herbicide plan activities have been consulted as part of a General Development Plan (GDP) process, they may not need further consultation. Contact the local AAF office for requirements.

2.5.4 Forest Residence

There may be a number of permanent or semi-permanent residences in the forest occupied within the season of intended herbicide application. This could include well-sites with offices, camps and fire lookout towers. It is the responsibility of the applicant to ensure that these types of facilities are located and contact made in advance to communicate the intent and details of the herbicide project.

- a. **Camps and Offices:** These facilities, which can be temporary, may be associated with dispositions, but may also require in-depth inquiry. Notification must be given to all facilities that are within or immediately adjacent to the intended herbicide project, or are at risk of being affected in any way by the operations of the herbicide project.
- b. **Fire Lookout Towers:** The applicant is responsible for locating fire lookout tower sites in relation to the proposed herbicide project. Where the boundary of a fire lookout tower site is within 805 meters (one-half mile) of the nearest opening intended to be treated with herbicide, the applicant will contact the Forest Area to work out details of operations for application of herbicide within the vicinity of a fire lookout tower site.

2.5.5 Optional Vegetation Management Strategy (VMS)

Forest management professionals who routinely use herbicides to help meet silvicultural objectives are encouraged to develop a vegetation management strategy (VMS). The VMS would be approved concurrent with the FMP and have a term of ten years. The VMS is intended to: fulfill several requirements of the annual herbicide use proposal, while more fully explaining the linkages between use

¹⁰ <http://www.indigenous.alberta.ca/policy-guidelines.cfm>

of herbicides for forest renewal and the FMP; to more broadly address the impact of herbicide use on forest values other than fibre supply; and to provide a more thoughtful examination of risks associated with herbicide application and their mitigation. Furthermore, the VMS provides a mechanism for transfer of vegetation management (in particular herbicide application and risk management) skill sets within the company when personnel changes occur and to streamline future approvals.

1. A VMS would provide a mechanism for more fully drawing the linkages between sustainability of fibre supply (as demonstrated by the FMP) and silvicultural use of herbicides. Thus, the VMS would be, in effect, a subset of the silviculture matrix included in the FMP. The reason for a specific discussion of herbicide use beyond the silviculture matrix is the high level of risk arising from the speed of treatment attendant upon aerial application of herbicides and the potential for stakeholder concern with herbicide use.
2. A VMS would also provide a mechanism to more fully explore and address the impact of herbicide use on forest values other than fibre. This longer term of the VMS would facilitate developing strategies for inclusion of other forest values that have temporal component (e.g. spreading treatments with herbicide through time to ensure maintenance of habitat across a specific portion of the landscape). Similarly, areas of high habitat value (e.g. winter range) could be identified and addressed more effectively if a temporal component of accommodation could be included.
3. Stakeholder engagement would be facilitated by the longer term nature of the VMS – it would provide an opportunity to identify areas of specific concern prior to prescribing treatments and thereby enable forest management professionals to anticipate and therefore avoid controversy. Stakeholders would also be more likely to feel that their input to the silvicultural use of herbicides was more meaningful.
4. Because the VMS would have a detailed discussion of risk and risk mitigation, it would provide a mechanism for transferring the technology of risk management within the company, thereby ensuring that staff changes did not compromise the herbicide skill set within the organization.

Contents of a VMS:

- i. Strengthened linkages between silvicultural treatments (silviculture matrix) and FMP expectations, especially with respect to composition and growth.
- ii. Detailed explication of why and how herbicides as used by the company would better ensure achieving objectives.
- iii. Discussion of how silvicultural practices affect or influence other values on the forest landscape, with detailed discussion of how herbicides can maintain or enhance other values.
- iv. Development of a non-fibre value accommodation strategy that addresses concerns raised by the previous bullet. In particular, discuss how this strategy will affect herbicide prescription and use.

- v. Detailed quantitative or/and empirical discussion of risk of off-target placement during herbicide application. Recommended that some form of risk modelling be undertaken.
- vi. Develop a robust three dimensional (application technology, weather parameters, buffer) risk management system to address issues identified in analysis above.
- vii. Develop a vegetation assessment protocol – preferably quantitative – that guides assessment of vegetation and provides information conducive to developing management objective (composition, aggregation, growth) driven prescriptions. (See revised Mixedwood Silviculture Guide for how to do this.)
- viii. Develop treatment thresholds driven by said quantitative assessment and prescription models that are driven by management objective and the nature of competition (eg. quantity, primary lifeform, site specific risk assessment).

2.6 Project Approval

2.6.1 Letter of Authorization

The local Forest Area's designated professional reviews the details of the project proposal and any input and resolution submitted as part of the public involvement process. If the Forest Area professional is satisfied that the herbicide use proposal has met the content requirements, and followed the public involvement and First Nations and Metis Settlement consultation requirements, then they coordinate the Letter of Authorization. The Letter of Authorization not only provides the approval for the herbicide use project, but also details specific conditions that apply to the approval and to which the applicant is bound to comply as a condition of approval.

Appendix 4 contains a template of the Letter of Authorization. Forest Areas may choose to add conditions to this letter template where specific requirements of a local nature are to be addressed; Letters of Authorization are to follow the content of the template. Any desire to remove or negate the standard conditions that appear in the template must be authorized by Forest Stewardship and Trade Branch through the Provincial Herbicide Coordinator.

Herbicide use as a strategy within a silviculture prescription is considered a component of the Silviculture Annual Operating Plan, which is a component of the Annual Operating Plan. Given that the designation of "director" referred to in TMR s. 98(1) establishes the approval authority for Annual Operating Plans, the herbicide project Letter of Authorization will maintain the same approval authority. Letters of Authorization may be signed by the Forest Area Manager or the Senior Area Forester.

2.7 Approval of Operational Research, Registration Testing and Seed Orchard/Genetic Projects

2.7.1 Operational Research and Registration Testing

Where the proposal involves herbicide use to further the objectives of a research project or herbicide registration testing, both from within and outside the forest industry, the proposal will be submitted through the Forest Area nearest the location of the desired application and be dealt with as follows:

- i. The Forest Area will inform the Provincial Herbicide Coordinator in FSTB of the research application received and work jointly towards a decision on use.
- ii. The approval application must follow the process for Approval of Forest Industry Operational Projects in Section 2.4 of this document, including the public involvement process. The applicant may submit their proposal to the Forest Area simultaneously to beginning the public involvement process.
- iii. If the proposed herbicide use area is less than or equal to 20 hectares, a review and decision will be made jointly between the Forest Area and the Provincial Herbicide Coordinator, and may not require an Indigenous or public involvement component. Alberta will respond to the applicant with approval or rejection no later than 14 days after the date of the receipt of the project proposal.
- iv. The intended use of a herbicide active ingredient other than the three approved active ingredients (Section 2.2) for use in forest management must receive special approval from the Forest Stewardship and Trade Branch through the Provincial Herbicide Coordinator.

2.7.2 Seed Orchard/Genetics Project

Herbicide use for treatment of genetic and seed orchard sites under formal disposition does not require formal approval as required in Section 2.6.1 of this document. Where forest companies or Alberta choose to use herbicides in this application category, they must notify the Forest Stewardship and Trade Branch through the Provincial Herbicide Coordinator with respect to the actual number of hectares treated. The hectares treated on these sites will be included in the reported annual Provincial total.

2.8 Objection Process

2.8.1 Application

This procedure applies to all notices of objection filed in response to proposals submitted to obtain authorizations for forest herbicide applications only, and for appeals of rejections, authorizations and conditional authorizations that have been issued by Alberta.

2.8.2 Combining Notices of Objection and Appeals

Where the Forest Area Manager receives more than one notice of objection in respect to a proposal; or an appeal, the notices of objection and the appeals may be combined for the purposes of dealing with them under this procedure. The Forest Area Manager shall notify the parties involved of his/her intent to combine similar notices of objection or appeals.

2.8.3 Notice of Objection

A notice of objection must be submitted to the Forest Area Manager under the following circumstances:

- a. Where a person believes they are directly affected by the proposed application and that a specific concern has not adequately been addressed by the proponent in their application for authorization; or
- b. Where a proponent objects to approval conditions in the Letter of Authorization.

The submission must include:

- a. The name and title of the person (and as required, the designated spokesperson) who is making the notice of objection and the details of the specific concern that is objected to in the proponent's application for an authorization;
- b. A description of the relief requested by the person objecting; and,
- c. The signature of the person objecting, a mailing address, e-mail address and telephone number.

The Forest Area Manager may dismiss a notice of objection if:

- a. The Notice of Objection is premised that the herbicide(s) being used are inherently unsafe;
- b. He/she considers the notice of objection to be frivolous or vexatious or without merit;
- c. The person submitting the notice of objection is not directly affected by the proposed herbicide application;
- d. The Notice of Objection was not filed within 30 days of the commencement of the proponent's public involvement program; or
- e. The proponent has not filed objection to a condition(s) of an authorization or to a rejection of a proposal by the Forest Area within 5 days of the authorization or rejection.

The Forest Area Manager will provide a written response to the person filing the notice of objection as to why the notice of objection was dismissed. Copies shall be provided to the Provincial Herbicide Coordinator.

2.8.4 Notices

Where the Forest Area Manager makes a determination to proceed with a notice of objection, he/she shall:

- a. Fix a date for the hearing and provide written notice of the date within five calendar days of receiving the notice of objection;
- b. When possible, complete the hearing within five calendar days following the final day of the notice period; and,
- c. Ensure that the required information from all parties (proponent, stakeholder, government representatives) is included in the hearing.

2.8.5 Electronic Hearing

The Forest Area Manager may, with the consent of the parties, conduct a hearing by teleconference where not all of the participants are in the same room, as long as it is physically possible for each of the participants to hear and respond to comments of the other participants at the time the comments are made.

2.8.6 Decisions, Reports, Recommendations

A written report and a decision of the Forest Area Manager must contain the following:

- a. A summary of the evidence;
- b. A statement of the issues to be decided;
- c. The recommendations or the decision;
- d. The reasons for the recommendations or the decision.

A copy of the report and a decision shall be sent to all parties of the appeal within five working days of the hearing.

2.8.7 Appeal of an Authorization or Rejection of a Proposal

An appeal to the Provincial Herbicide Coordinator's FSTB Director must be made within five calendar days of the decision by the Forest Area Manager. Only the following parties may appeal a decision by the Forest Area Manager to the FSTB Director:

- a. The proponent that has filed a written notice of objection with the Director during the time frame specified; and
- b. Any party that filed a written notice of objection with the Director during the proponent's public involvement program.

When possible, the FSTB Director shall reach a written decision on the matter of the appeal within five calendar days and shall send a copy of the decision to all affected parties. The FSTB Director's decision shall be final and binding on all parties.

2.9 Final Submission

Alberta requires reporting related to herbicide application programs. The following are required:

1. Reporting known off target applications (OTA's) as required by section 110(1) of EPEA to AEP and AAF.
2. An ESRI Shapefile copy of the treated area as per the AAF Policy No.4 – Silviculture Activities Digital Data Submissions and Spatial Digital Data Formats Guidelines.
3. A Program Summary Report may be requested by the local Forest Area and Forest Stewardship and Trade Branch (Appendix 5 - Herbicide Use Project Summary Form). If requested it should be submitted by February 1 of the timber year of application. Openings to be audited for OTA's in the upcoming OTA Audit shall be submitted to the area by February 1.
4. ARIS submission by May 15.
5. Off Target Application Audit submitted to the Forest Area by July 15 of the following year.

2.10 Off Target Application Inspections

2.10.1 Duty to Report Release

Section 110(1) of EPEA states that a person who releases or causes or permits the release of a substance into the environment is required to report this release to:

1. The Director (AEP) through the EDGE line 1-800-222-6514
2. The owner of the substance;
3. The person reported to in an employment relationship;
4. The person having control of the substance; and
5. Any other person deemed necessary to know of the release of the substance (AAF Senior Forester and Provincial Herbicide Coordinator).

Releases are required to be reported immediately as soon as they are known.

2.10.2 Unknown Off-Target-Applications and the Post-Treatment Monitoring Requirement

An Off Target Application (OTA) is each application or movement of herbicide to an area prohibited by legislation, or into an unintended or unapproved area. Alberta requires that all forest management herbicide projects be monitored by industry for their outcome in relation to possible OTA's that were not readily observable at the time they may have occurred. Monitoring must occur the season after application post vegetation flushing to check for herbicide related dead or dying vegetation. Forest operators are required to perform a post-treatment assessment and submit an OTA report signed by a Registered Forestry Professional no later than July 15 each year for the previous year's treated openings. Forest Operators must submit by February 1 the openings planned for the upcoming OTA audit.

The following are the requirements of the post-treatment assessment and reporting process:

1. In year one of the proponents operational program, 100% of the treated blocks shall be monitored; in year two, 50%; year three, 25%; year four, 10% year five onward, as stated in the post treatment plan. These will be prioritized by risk first (GPS files showing OTA's, suspect weather conditions, required buffers for other values, etc.), then the remainder chosen randomly. If circumstances change, such as the equipment or contractor, more blocks should be monitored. The level of monitoring may also increase based on past history.
2. If greater than 25% of the opening assessment population has an OTA reported on it, regardless of size, the remaining openings that received herbicide application in the treatment season will be assessed and reported on.
3. On completion of the field assessment for OTA's, the forest operator will immediately report found OTA's to AEP and to the local AAF office. The following information will be provided in the incident report:
 - a. Location and size of the OTA(s) for each opening. Include legal land descriptions of the area in question and appropriately scaled maps.
 - b. The type and extent of vegetation damage by species, with photo documentation.
 - c. The type and extent of impact to non-vegetative resources (soils, water bodies, wildlife, wildlife habitat, etc.), if applicable.
 - d. An explanation of how the OTA might have occurred, and recommendations for mitigating the reoccurrence of a similar event.

The overall assessment of openings for OTA's will be summarized and submitted on the Off-Target-Application (OTA) Audit Form in **Appendix 6**. All instances of OTA's discovered in this audit will be addressed and submitted on the Off-Target-Application (OTA) Reporting Form in **Appendix 7**.

A deviation to the sample size protocol may be requested by the proponent and approved by the Forest Area based on previous year's herbicide programs. An increase to the sample size requirement will be required if the proponent has had restrictions to herbicide application imposed.

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Appendix 1

Herbicide Project Submission Checklist

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Herbicide Project Submission Checklist (for final plan)

Operator (incl. company division): _____
 Submission Date: _____
 Program Year: 20 _____

For AAF Use Only:

Date Received by AAF: _____
 Expected Date of Review Completion: _____
 AAF Reviewer: _____

Restricted Activity Status (for this Program Year) Yr 1, 1,000 ha Yr 2, 500 ha Other _____ ha Other _____ ha

Proposed Area (ha): Aerial _____ Ground _____ Area(s) acceptable relative to Restricted Activity? Yes No

Treatment History - herbicide programs completed in last 4 years:

	Area (ha)			# Openings			Monitored/Checked			
	Aerial	Ground	TOTAL	Aerial	Ground	TOTAL	Area (ha)	%	# Openings	%
20 15			0.0			0		0.0		0.0
20 16			0.0			0		0.0		0.0
20 17			0.0			0		0.0		0.0
20 18			0.0			0		0.0		0.0

Name of person(s) supervising spray program: _____

Does this person(s) have the experience to adequately supervise and minimize risk, regardless of the restricted activity status of the operator?

(Consider ground vs. aerial experience, size of programs supervised, number of personnel/aircraft supervised, etc.)

Yes No

Comments on experience of person(s) supervising program: _____

Off-Target Application (Excursion) History - number of excursions by type in last 4 years

	Water*	NDZ**	Other	TOTAL	Extent (ha)***	Applicator
20 15				0	ha to ha	
20 16				0	ha to ha	
20 17				0	ha to ha	
20 18				0	ha to ha	

*Water includes application into open bodies of water

**No Deposit Zone violations (i.e. application closer than the minimum required distance from open bodies of water)

***Range of OTA (excursion) sizes, smallest to largest (e.g. 0.2ha to 6.3ha)

Plan Components Included with Submission

Treatment Objective: Stand Tending (ST) Site Preparation (SP) Crop Tree Thinning (CT)

Treatment Timing: Program start date: _____ Program end date: _____

Program Type: Operational Research

Treatment Method: Aerial Ground

broadcast (disk core or air induction) (AD) backpack broadcast (BB) basal bark (stem based) (RS)
 broadcast (Accuflow or TVB) (AP) backpack patch (BP) stem injection (SI)
 highlight (disk core or air induction) (HD) ground (mechanical) broadcast (GB) cut surface (CS)
 highlight (Accuflow or TVB) (HP) basal bark (area based) (RB)

Chemical & Rate:	Active Ingredient				Trade Name	PCP#	L/ha
<input type="checkbox"/>	Glyphosate	Triclopyr	Imazapyr	Other (research)			
<input type="checkbox"/>	Glyphosate	Triclopyr	Imazapyr	Other (research)			
<input type="checkbox"/>	Glyphosate	Triclopyr	Imazapyr	Other (research)			
<input type="checkbox"/>	Glyphosate	Triclopyr	Imazapyr	Other (research)			
<input type="checkbox"/>	Glyphosate	Triclopyr	Imazapyr	Other (research)			

Description of Treatment Area/Location:

- a. Opening details: opening number, total area, treatment area, current (approved) reforestation landbase designation (strata)
- b. Identify openings where herbicide has been previously applied & rationale for repeated application
- c. List waterbodies, field-verified classifications & buffer requirements
- d. Identify sensitive areas & protection requirements (e.g. mineral licks, soil slumping, trap lines, specific habitat, etc.)
- e. Maps - the following items are included on maps no smaller than 1:20,000:
 - i. target (treatment) areas, "no treatment" areas, sensitive areas; buffer zones for these if required
 - ii. "no deposit zones" & additional buffers for waterbodies
 - iii. location of mix/load sites
- f. Prescription rationale & supporting site/veg information (may include decision key)

Indigenous Consultation Program

- a. Has direction been given on which Indigenous Communities require consultation?
- b. Is herbicide consultation a part of General Development Plan (GDP) or this proposal? GDP Proposal
- c. Were concerns and mitigation documented in the Record of Consultation (ROC) Log?
- d. Are the mitigative actions incorporated into the proposal?
- e. Has an adequacy assessment been made on consultation?
- f. Are there any outstanding action items?

Public Involvement Program (PIP):

- a. Is the proposed herbicide program greater than 20 ha? No Yes *If yes, a Public Involvement Program (PIP) is required.*
- b. Provide evidence (copies) of advertisements & letters to stakeholders regarding notification of proposed herbicide program with contact info, etc. for feedback
- c. Provide evidence of notification to PLFD regarding PIP
- d. Describe how and in what timeframe any public concerns will be addressed
- e. Describe public concerns raised & provide evidence of having addressed concerns in manner outlined in (d.)
- f. Provide evidence (copies) of advertisements & letters to stakeholders regarding notification of approved herbicide program & commencement dates

Consultation with Overlapping Tenure Holders:

- a. Provide evidence (copies) of notification to overlapping tenure holder(s) of proposed herbicide program with contact info, etc. for feedback
- b. Describe tenure holder concerns raised & provide evidence of having reasonably addressed those concerns
- c. Provide evidence (copies) of notification to overlapping tenure holder(s) of approved herbicide program & commencement dates

Wildlife, Fisheries, Watershed & Biodiversity Objectives:

- a. Identify special features such as den sites, mineral licks, fish bearing streams & sensitive habitat (include in maps)
- b. Describe wildlife, fisheries, watershed & biodiversity objectives as related to vegetation management (herbicide) plan
- c. Describe harvesting, operational ground rules & local FWD management objectives as related to vegetation management (herbicide) plan
- d. Describe specific strategies for landscape/stand structure, live tree & lesser vegetation retention that will be used to meet objectives in (b.) & (c.)

Reporting & Monitoring Plan:

- a. Ensure that the previous year's Herbicide Program Summary Report has been completed and submitted on time (Appendix VI)
- b. Ensure that the previous year's Herbicide Excursion Auditing Report has been (or will be) completed and submitted on time (Appendix VII)
- c. Ensure that any associated Herbicide Excursion Reporting Forms have been (or will be) completed and submitted with (b.) (Appendix VIII)
- d. Describe the Monitoring Plan (% of blocks, sampling method & "checking" methods) to be carried out for this year's program
 - i. Sampling intensity 100% 50% Other %
 - ii. Sampling method **Selection by:** AAF Operator **Method:** Random Identified Risk Suspected problem
 - iii. "Checking" method Aerial Ground

Risk Management Provisions:

- a. Identify & evaluate typical (standard) operational risks (e.g. wind, RH, spray equipment, etc.)
- b. Describe operational risk management procedures*; may reference stand-alone, current "Standard Operating Procedures"
- c. Describe additional risk management procedures for unique situations or where not addressed by "Standard Operating Procedures"

* risk management procedures (or SOPs) must include: communications protocols, roles/responsibilities, weather thresholds (temp, RH, windspeed, etc.), buffers (when, where, size & markings [bags, flags, etc.]), use of technology (GPS, nozzle types, etc.)

Validation of Submission

I do hereby declare that the information provided in this checklist and the accompanying herbicide plan submission is accurate and complete, and that the herbicide plan submission has been prepared in accordance with the current version of the Forest Management Herbicide Reference Manual.

Signed: _____ Print: _____ Registration #: _____ Date: _____

Appendix 2

The Use of Bag-Lines in Marking Buffers to Herbicide Application

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August 16, 2013

Dear Woodlands Manager:

**Subject: THE USE OF BAG-LINES IN MARKING
BUFFERS TO HERBICIDE APPLICATION**

The Environmental Protection and Enhancement Act (EPEA), Environment Code of Practice for Pesticides, Section 11(5)(c), requires pesticide applicators to “*ensure sufficient marking or flagging of all open bodies of water that will not be clearly visible to the applicator during the application.*” Within the pesticide applicator culture, normal forestry flagging tape is used to mark the no-deposit-zone boundaries for the majority of on-the-ground application of pesticides (herbicides). Normal forestry flagging tape is not clearly visible to *aerial* applicators of forest herbicides. Aerial applicators and their forest industry professional supervisors have adopted the strategy of using “bag-lines” as the preferred and most successful strategy of temporary boundary marking for aerial herbicide application, a bag-line being simply a series of plastic shopping bags (or equivalent material of bright color or typically white) tied to tall sticks placed at intervals along the appropriately located boundary or buffer, allowing aerial applicators to accurately align their application lines.

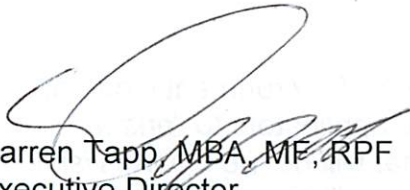
I acknowledge the diligent and responsible attitude of the industry forest professional in ensuring that no pesticide enters an open body of water, and I further acknowledge the utility of the bag-line strategy for clear visibility in aerial application. The use of bag-lines has resulted in an undesirable outcome that I wish to address here. As a general practice, plastic bags used in bag-lines are not collected after the herbicide application project is completed. ESRD field staff have found plastic bags still in the cutblock in which they were employed several years after the herbicide project was completed, including products designated as biodegradable. Other bags have dislodged from the stick they were originally tied to and have blown into adjacent stands where they persist. These plastic bags pose a threat to wildlife and are unsightly. This has resulted in an accumulation of litter due to a sanctioned forest management activity.

To remain consistent with the treatment of all forest litter generated from forest management activities (appropriate disposal and clean-up of camp waste, sumps, planting boxes, etc.), all plastic bags from bag-line marking must be collected and disposed of appropriately to the satisfaction of ESRD once the herbicide application project is completed. In order to utilize the additional benefit of bag-lines in accurately locating off-target applications (OTA), the bags can be collected no later than August 31

of the calendar year following the calendar year in which the herbicide application project was delivered. Failure to do so to the satisfaction of ESRD may result in enforcement action as per Section 54(1)(a) of the Public Lands Act. This requirement will apply to the 2013 herbicide project season and forward.

Should you have any questions about this requirement, please contact Marty O'Byrne by telephone at 780-624-6209 or by email at Marty.Obyrne@gov.ab.ca.

Yours truly,



Darren Tapp, MBA, MF, RPF
Executive Director

- c: Byron Grundberg, FRIAA
Operations Managers, Regional Offices
Senior Foresters, Regional Offices
Senior Managers, FMB
Laura Hammer, Policy Division

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Appendix 3

Herbicide Use Proposal Summary Table

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Herbicide Use Proposal Summary Table

Forest Operator: _____

						Treatment Strategy										
Disposition	Working Area/Circle	Field Number	Opening Number	Total Block Area (ha)	Strata Standard	Treatment Objective	Target Species	Treatment Area (ha)	Active Ingredient	Herbicide Product Name	PCP Number	Application rate (l/ha)	Method of Application	Surfactant	Treatment Number	Additional Information

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Appendix 4

Letter of Authorization

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Appendix 4

RE: HERBICIDE PROJECT AUTHORIZATION

Alberta Agriculture and Forestry (AF) staff have reviewed your herbicide project proposal submitted on (date) and authorize this project in accordance with the review and approval process described in the Forest Management Herbicide Reference Manual, published by AF, subject to the following conditions:

1. All herbicide treatments must be conducted by a Registered Pesticide Service in accordance with all applicable federal, provincial and municipal legislation. Any questions regarding the regulatory requirements of Registered Pesticide Services can be directed to the Alberta Environment and Parks (EP) Pesticide Certification specialist.
2. (Forest Company) must ensure that the public has been advised of the purpose and scope of the project by means of a notice published in one or more newspapers within the vicinity of the proposed treatment sites a maximum of ninety days and a minimum of 72 hours prior to the commencement of herbicide treatments.
3. Prior to commencement and upon completion of the project, the appropriate AF Forest Area office must be notified at (phone number or email of Forest Area office or professional).
4. (Forest Company) must identify an authorized representative that will be cognisant of the herbicide project and available on site while herbicide treatments are being conducted.
5. All herbicide treatment locations, areas, pesticides used, application methods, application rates, and application time frames are restricted to those identified in the project proposal submitted by (Forest Company professional) and reviewed by the Forest Area office in consideration of this Herbicide Project Authorization.
6. The Certified Pesticide Applicator responsible for supervising pesticide mixing must be in possession of a copy of this Herbicide Project Authorization and a copy of the corresponding project proposal while herbicide treatments are being conducted in accordance with the latest edition of the Environmental Code of Practice for Pesticides published by EP.
7. The locations of mixing/loading sites that are not within (Forest company name) disposition must be authorized by the Forest Area office prior to use. Any mix sites with existing dispositions will require approval from the disposition holder.
8. (Forest company name) must monitor areas for off-target-applications (OTA) in accordance with the monitoring plan included in the project proposal submitted by (Forest company name) and reviewed by the Forest Area office in consideration of this Herbicide Project Authorization. Any OTA's identified must be immediately reported to Alberta Environment and Parks by calling 1-800-222-6514 and the appropriate Forest Area office in accordance with the requirements stated in the Forest Management Herbicide Reference Manual.
9. All water course crossings required for ground access herbicide treatments must comply with (appropriate company or other ground rule) and the Code of Practice for Watercourse Crossings, if applicable.

10. All herbicide applications shall be completed prior to November 30 of the treatment calendar year unless otherwise specified.
11. A summary of the Herbicide Program completed under this Authorization will be submitted to ARIS by May 15. If requested by the Forest Area, a summary will be submitted to the Forest Area office no later than February 1 after the treatment. The Forest Area office will advise as to the appropriate format of the submission.
12. All bag lines utilized in the (treatment calendar year) Herbicide Program must be removed from the treated cutblocks on or before August 31 (following calendar year from treatment calendar year).

Should you require any further clarification regarding this authorization letter, please contact (appropriate Forest Area professional) at (Forest Area professional's phone number).

Sincerely,

(appropriate Forest Area Manager)

cc: Provincial Herbicide Coordinator
Area Forester

The logo for the province of Alberta, featuring the word "Alberta" in a stylized, cursive script font, followed by a small square icon.

Freedom To Create. Spirit To Achieve.

Appendix 5

Herbicide Use Project Summary Form

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Appendix 5
Herbicide Use Project Summary Report

			Treatment Outcome			
Disposition	Opening Number	Total Block Area (ha)	Actual Area Treated (ha)	Herbicide Product Name	Date of Application	Additional Information (includes special operating conditions)

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Appendix 6

Herbicide Off-Target Application Audit Form & Post-Treatment Inspection Tally Sheet

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Post-Treatment Inspection Tally Sheet

Inspector Name:	Date:
Forest Operator:	
Cutblock Opening Number:	
Legal Description (if known) (Twp/Rge/M):	
Applicator or Contractor:	
Forest Operator:	

1. Look for evidence of off-target movement of herbicide along cutblock edges, within adjacent cutblock boundaries or along edge of mature residual patches.

(check one)

	Spray Drift
	Surface movement
	Ground application
	Spill
	Root uptake

2. Describe damage to non-target vegetation (may take photos of damaged area or symptoms on vegetative parts).

3. Is there evidence of any impact from the herbicide application on any vegetation within the no deposition zone of an open body of water (as defined in the Pesticide Regulations)?

Yes

No

If Yes:

- describe and take photos
- location and type of water (stream, fen, lake, etc.)
- name of waterbody (if known)
- distance (metres) affected from the bed and shore
- general comments on the damage, its extent and any effects that are not expected to recover or may require rehabilitation efforts

4. Identify any other non-compliance to the Environmental Code of Practice or Pesticide Regulations and the type of violation including:

	Herbicide spills experienced
	Public safety issues
	Public involvement
	First Nations consultation
	Signage
	Credential (applicator license, service registration)
	Appropriate Supervisory
	General operational concerns with risk management
	Non-compliance to any conditions of Letter of Authorization

NOTE: Findings from the Post-Treatment Survey are expected to eventually populate parts of the Herbicide Off-Target-Application Audit Form (see Appendix 7) and the herbicide Off-Target-Application Reporting Form (see Appendix 8).

Appendix 7

Off Target Application Reporting Form

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Herbicide Off-Target-Application (OTA) Reporting Form

Forest Operator Name:				
Forest Operator Address:				
Contact Name:				
Contact Phone Number:				
Herbicide Application Contractor:				
Reported Incident Information:				
Incident Date: (dd/mm/yr)				
Incident Time:				
Location of Incident: (M/Rge/Twp/Sec/quarter)				
Cutblock Opening No.:				
Number of OTA's:				
Total Area OTA's (ha).				
Comments:				
Incident Type: (check one)				
IMP - Impact	<input type="checkbox"/>	VEG - Vegetation		
	<input type="checkbox"/>	CNW - Contaminated Water		
	<input type="checkbox"/>	CNS - Contaminated Soils		
LEG - Legislation	<input type="checkbox"/>	OPR - Operating w/o approval/authorization	<input type="checkbox"/>	REG - regulation (no impact)
	<input type="checkbox"/>	APP - Approval Condition contravention	<input type="checkbox"/>	TRN - No training certificate
REL - Release	<input type="checkbox"/>	SPL - Spill	<input type="checkbox"/>	DSC - Discharge
	<input type="checkbox"/>		<input type="checkbox"/>	NRU - non-registered use
	<input type="checkbox"/>		<input type="checkbox"/>	UAT - unauthorized treatment, area or application
Herbicide Used:				
Type and Extent of Damage:				
Vegetation:				
Non-vegetation:				
Suspected Cause:				
Follow-up action taken:				
Comments:				