INTEGRATED VEGETATION MANAGEMENT PLAN

for

New England Central Railroad

For Railroad Rights-of-Way in the State of Vermont

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Based on The Vermont Pesticide Advisory Council's
Railroad Vegetation Management Workgroup sample IVMP

Acknowledgements

The structure of this IVMP was inspired, in part, by the Integrated Pest Management Online Service's Model found at http://www.efn.org/~ipmpa/ipmpolcy.html and by the University of Nebraska at Lincoln Cooperative Extension's Right of Way Pest Control For the Commercial/Noncommercial Pesticide Applicator manual.

An online copy of the ROW Pest Control manual can be viewed at http://pested.unl.edu/catmans/row/row.htm.

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Section 1: Introduction

Railroads Operating Under This Plan

The railroad companies listed here have agreed to use this Integrated Vegetation Management Plan (IVMP):

New England Central Railroad

Purpose of this IVMP

This IVMP provides an example of implementing IVM programs and informing railroad personnel/employees and the public about IVM principles on Vermont Railroads. It has been prepared for the participating railroads by the Vermont Pesticide Advisory Council's Railroad Vegetation Management Workgroup and shall apply to their rights-of-way (ROW) within the State of Vermont.

This IVMP describes a variety of operational practices which include physical, chemical, and other methods used to manage, control and eradicate vegetation on railroad ROW. This IVMP outlines and interprets a long-term program for managing vegetation on railroad ROW. This document represents careful planning and collaboration between qualified professionals so that the general welfare and safety of railroad personnel/employees and the public is ensured, and that no unreasonable effects are caused to the environment.

The IVMP addresses the major components of vegetation management including: an overview of vegetation management along a railroad ROW; the vegetation management requirements of railroad ROW; the principles of IVM and vegetation management techniques; the protection of sensitive areas, including alternative technologies being studied for their effectiveness in these areas; and the operational guidelines for herbicide applicators.

In recognizing the need for clear and respectful dissemination of information about railroad ROW vegetation management strategies, there is also a section in the Appendix titled, "Public Relations Protocol." This protocol is designed for vegetation managers and includes suggestions for addressing public concerns, such as organic farm buffers, pastures, and notification for chemically sensitive individuals.

Section 2: Overview of Railroad ROW Vegetation Management

Understanding the design of a railbed and how vegetation influences its structure is critical to understanding the management practices necessary for maintaining a safe rail line.

Components of the Railbed

(see Appendix A for diagram)

The typical railroad roadbed consists of ballast on a graded and compacted earthwork section. The track is supported by the ballast. The earthwork section typically slopes downward to drainage ditches on each side of the track.

The entire railroad roadbed and adjacent area are designed to carry water away from the tracks. The ballast is the material between and under the ties. It consists of crushed stone or gravel and is compacted around and under the ties to support them vertically and laterally. Pore space in the ballast allows water to drain away from the ties and into drainage ditches which carry it away from the track. Dirt falling from passing trains or washed or blown into the ballast can inhibit drainage and can provide adequate seedbed areas for some plants.

How Vegetation May Affect the Integrity of the Railbed

Plant seeds carried to the track area by the same mechanisms as the dirt can sprout and begin to develop. During plant development, fibrous root systems appear which expand through the ballast and accumulate additional dirt. The fibrous roots of most plants are continuously dying and renewing themselves adding decaying plant material to the accumulating dirt. This mixture of dirt and plant material holds moisture and provides a seedbed for new plants. The drainage capacity of the ballast is greatly reduced and moisture is retained around the ties contributing to their decay.

During rain, the fouled ballast can retain enough moisture to become saturated. This results in a loss of support for the track both vertically and laterally leading to movement under the train.

Vegetation and Fire Hazards

In dry weather, vegetation within the roadbed can be easily set on fire by brake shoes on steel wheels. The exhaust from diesel locomotives is another source of sparks, particularly as the throttle position is being increased or decreased. Track maintenance activities such as cutting, grinding, or welding rail are another ignition source. In order to minimize the potential for fires, railroads keep their ROW clear of flammable material, including vegetation.

Other Safety Issues that May Result from the Presence of Vegetation in the Ballast Area

An additional problem occurs with the above ground portion of plants growing near the rails. Trains depend on friction between the steel rails and steel wheels for moving and braking. Anything that reduces friction between the wheels and rails can create dangerous problems. A light rain which wets the track can double or triple minimum stopping distances required, depending on the train's weight, speed, and the slope involved. Most plant tissues are immediately crushed between the wheel and rail, but release water and plant sap which acts as a lubricant just as rain does and may increase stopping distance by the same proportions.

Vegetation also creates unsafe footing for railroad personnel/employees, particularly train crews which may be at work at any hour and in any weather. The vegetation itself may be the hazard or it may conceal objects or areas of unsafe footing.

Vegetation, Visibility, and Signals

Visibility is important both for railroad personnel working on or near trains and for motorists crossing railroad tracks. Train engineers and other operating personnel must be able to see all types of railroad signals. These signals indicate the status of the traffic on the track ahead and also indicate when whistles must be sounded as the train approaches a road crossing. Signs also provide other types of safety information as well. Motorists must be able to see trains as they approach railroad crossings and employees must be able to visually inspect moving rail equipment. Locomotive engineers must be able to see around curves and see that switches and derails are in the correct position.

Federal laws require vegetation control to ensure proper functioning of signals and communication lines. Trees and plants short out electrical equipment and cause failure of communication systems and signals.

Inspections and Vegetation Management

Vegetation in and around the rails and ties must be managed in order to permit routine inspections of the roadbed structural integrity. Vegetation that hinders the ability to inspect roadbed structures must be eliminated in order to ensure the safety of railroad personnel and operations (see Section 3 below).

Adopting an Integrated Vegetation Management Approach

Integrated Vegetation Management, as performed by the railroads, involves careful planning, organizing, and implementing an overall program involving all operational departments and personnel, so that all appropriate techniques of vegetation control will be considered.

All appropriate non-chemical techniques and methods which remove or control pest vegetation will be identified and integrated into the overall vegetation management program. No sector or area of the ROW will receive herbicide treatment if a routine or operational activity will remove the vegetation during the process. This operational procedure is intended to further reduce the reliance on chemical control and the amount of herbicide applied each year.

Whenever possible and wherever consistent with the ROW system, the railroad industry should implement an integrated approach to vegetation management by encouraging plant communities which hinder the development of target vegetation.

Ensuring the IVM Approach is Successful

A team of professionals comprised of roadmasters, engineers of track and vegetation control, and herbicide application specialists will develop an annual plan that select those vegetation control methods which minimize risk to personnel and operator, for the general public and the environment. Vermont Rail System will monitor and evaluate the success of their program and integrate appropriate new methods in their IVMP.

Section 3: Management Requirements of Railroad ROW

Federal Railroad Administration (FRA) Regulations

FRA regulations (49 CFR Part 213.37) require that vegetation be controlled so as not to interfere with the track inspector's duties. Specifically 49 C.F.R. Subsection 213.37 states:

Vegetation on railroad property which is on or immediately adjacent to roadbed, must be controlled so that it does not:

(a) Become a fire hazard to track carrying structures
(b) Obstruct visibility of railroad signs and signals
(c) Interfere with railroad personnel/employees performing normal trackside duties
(d) Prevent proper functioning of signal and communication lines
(e) Prevent railroad personnel/employees from visually inspecting moving equipment from their normal duty stations

Annual vegetation control is necessary in the following areas:

- Ballast section
- Ballast shoulder
- Yards
- Switches, signals, and signs
- Highway grade crossings
- Bridges, bridge abutments, and buildings
- Off-track areas
- Inside of curves

The statutory and regulatory intent is specific: the safety of the railroad must be guaranteed through inspection, maintenance, and repair of the ROW.

Using IVM to Meet FRA Requirements

In areas such as those adjacent to the ROW roadbed where total vegetation control is not required, various selective vegetation control techniques are practiced. The goal and purpose of this integrated vegetation control approach is to increase competition for light and growing space for desirable species by selectively eliminating tree species.

By selectively removing these target species by physical or chemical methods, the non-target species will not be affected. In these cases, the target vegetation is eliminated and the desirable, low growing species will be able to rapidly grow and fill the area due to an increase in sunlight, water, and nutrients.

The selective elimination of trees and brush[1] species is site, species, and density dependent. The selection of technique will also take into consideration the preservation and enhancement of non-target desirable species. In no case would a pre-emergent herbicide be used in these areas.

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[1] Throughout the remainder of the IVMP, the term brush shall denote target species which interfere with the ROW system and must be controlled. Shrub shall denote a desirable species (non-target) which can be tolerated on the adjacent area and will be selectively managed.

In certain adjacent areas of the ROW, branches and limbs of trees grow into or have the potential to move into the roadbed area striking trains or fouling overhead communication lines. In these cases, the tree will not be eliminated if a selective side trimming of the encroaching limbs can be made from an aerial lift mounted on hi-rail equipment, or on a truck.

Selective side trimming will be considered on a site by site basis according to the type and density of target vegetation present and its propensity to invade the roadbed area or foul communication lines.

Trees and shrubs on the ROW which act as a buffer between the adjacent property and ROW will only be managed if they will interfere with the function and safety of the ROW. Selective vegetation management increases desirable vegetation, prevents erosion, and is aesthetically pleasing to adjacent property owners.

In summation, this IVMP can also be considered an integrated plant management program. The ROW will be subject to a "Vegetation Site Inspection" monitoring the vegetation on the roadbed and adjacent areas. All operational and divisional activities scheduled for that year will be identified for those sites. If those activities will control the vegetation on those sites, no other vegetation management activities will be undertaken. On those areas, in which the vegetation will not be controlled by operational activities, an assessment will be performed to determine the most selective vegetation management approach.

Section 4: Definitions

General Definition of IVM

IVM is a sustainable approach to managing vegetation by using all appropriate technology and management practices in a way that minimizes health, environmental, and economic risks. IVM includes, but is not limited to: monitoring plant populations; education; cultivation practices; sanitation; structural maintenance and physical, mechanical, biological and chemical controls.

Railroad ROW IVM Practitioner

The person responsible for vegetation management along railroad ROW. He or she must have a clear understanding of what the VPAC (Vermont Pesticide Advisory Council) considers IVM Practices, a valid Commercial Pesticide Applicator license issued by the VAAF&M, and a certification in Category 6 (ROW Pest Control).

Railroad personnel should be educated on the philosophy of IVM and the various pest management techniques that can eliminate reliance on pesticides. An overall reduction in chemical controls, along with the appropriate choice of pesticides and application methods through the use of IVM, results in a lower risk and exposure potential for humans and other non-target organisms. Risks and efficacy of both chemical and non-chemical control methods of pest suppression must be considered as part of an overall pest management strategy. Personnel should have field experience and training on plant identification, plant culture, pest identification and control, and the principles of IVM.

Components of IVM:

Establishing Action Thresholds

An action threshold is a level at which some method of control would be initiated. Action thresholds are determined by such factors as severity of the vegetation problem, impacts on health and safety, economics and aesthetics related to the vegetation and user needs for the site where the pest is found. The ROW manager or vegetation control specialist should determine and record tolerance levels for pest vegetation, which will be part of the Vegetation Site Inspection (See Section 3). This may vary by pest species or type, and site.

Selection of Optimal Strategies

The criteria for developing management strategies include:

A. Least disruptive controls
B. Least hazardous to human health
C. Minimizes negative impacts to non-target organisms
D. Least damaging to the general environment
E. Best preserves natural or managed ecosystem
F. Most likely to produce long-term reductions in pest control requirements
G. Effective implementation is operationally feasible
H. Cost-effectiveness in the short and long term

Timing

Timing is the consideration given to applying a treatment action during the most vulnerable time in the life cycle of the vegetation or pest with the least impact on natural predators or other non-target organisms.

Monitoring

Railroad ROW must be monitored (inspected) on a regular basis for integrity of the track and the condition of vegetation in the ROW. This process involves regular inspections under stringent federal guidelines. These inspections take place several times a week, and more frequently during periods of extreme weather. Records of each visit must be kept. If vegetation is present in the track structure or obstructing lines of sight, this must be noted in the Track Inspection (see Section 3) and a course of action must be formulated to address control of the vegetation. Weeds or grass gradually invading or germinating in a track area can be monitored during inspection periods.

Documentation and Recordkeeping

A site-specific history will be kept of all monitoring observations, vegetation infestations (see Section 3), cultural procedures, control measures and pesticide treatments made through a process of formal documentation and recordkeeping. Careful documentation and recordkeeping should allow each ROW manager to note and track the problems associated with each site over time. Accumulated plant knowledge is used to predict, monitor and detect vegetation outbreaks.

Active avoidance of vegetation problems through early detection and intervention, once vegetation growth reaches action thresholds is a desirable IVM outcome. A successful IVM program for a ROW requires that the ROW manager be able to recognize and implement the basic principles of an IVM program.

Over time, year to year comparisons can be made, and the IVMP updated accordingly to address new problems or conditions. In order for this to occur the following minimum records should be kept.

- Treatment records, noting the vegetation conditions, control technique(s) used, and any related comments.
- Documentation of all vegetation management control techniques, including evaluation and effects of each used.
- Pesticide application records in accordance with Vermont Regulations for the Control of Pesticides, which include herbicide/adjuvant mixture components and proportions, equipment, rate of application, the location of treated and track and adjacent areas, date of application, trade name of product and EPA registration number, applicator name, and target pest.

Evaluation

Evaluation involves analysis of treatment strategies and prescriptions to help determine the effectiveness of the control program. These records are useful in developing future pest management plans.

Railroad Related Terms

Culverts

Culverts are generally constructed with steel pipe, concrete pipe or stone and are normally placed at right angles to the track. Culverts which are not of sufficient length to extend beyond the roadbed spray pattern plus required buffer, or which are shallow to the roadbed and constructed of stone and could allow herbicide to enter a watercourse, will not be treated.

Ditches

Drainage ditches must be maintained so that their function is not impaired. Drainage ditches much be maintained weed-free if necessary to permit the flow of water away from the ballast and track structure and to maintain a stable roadbed.

Railbed

The *railbed* is a man-made structure which consists of the rail and ties, ballast, ballast shoulder, and its drainage system. The ballast and ballast shoulder are constructed of hard stone which supports the track. It distributes the load on the track evenly and drains water away from the roadbed. The roadbed drainage system is constructed to carry water draining out of the ballast away from the track.

Railroad Yards

Railroad yards include yards, buildings, fueling facilities and off-track areas. Yards are areas with multiple tracks and switches where trains are assembled, disassembled, and equipment is stored. Buildings include offices, maintenance and repair buildings and signal towers, usually within yards. Fueling areas are locations where locomotive fuel is stored and distributed. Off-track areas are locations that are not assessable from rail.

ROW Area Adjacent to the Shoulder

Trees and shrubs growing adjacent to the shoulder should be managed to promote the growth of low growing shrubs. Treated trees and shrubs will be those which have the potential to block visibility or invade the roadbed and/or overhead communication lines.

The diagram in Appendix A illustrates typical areas on the ROW area adjacent to the shoulder. These areas are generally between the roadbed and the edges of the ROW on either side. Shrubs in these areas provide a visual screen blocking the view of railroad traffic. These areas may be maintained to include a wide variety of shrubs and herbaceous plants.

On the side of the ROW containing overhead signal and communication lines, low growing shrubs and most herbaceous plants will be maintained and encouraged in an effort to reduce the invasion of tall growing trees into these areas. Tall growing trees growing near overheard signal and communication lines must be controlled.

Low growing vegetation will be encouraged in areas containing underground communication or signal lines. In areas where above ground lines are present, low growing vegetation will be encouraged on the area opposite the lines

Sensitive Areas

Sensitive Areas are sites where environmental or anthropogenic features occur adjacent to the ROW that require additional consideration in order to provide protection from ROW vegetation management activities. Sensitive areas may include surface waters, public and private drinking water supplies, threatened and endangered species, and areas with a high level of human activity. Herbicides shall not enter the waters of the State. Herbicides (other than Glyphosate) applied parallel to water courses shall have a visible limit of 15 feet from the edge of the water and a visible limit of 30 feet from the water's edge at all water crossings. In areas where the parallel water's edge is less than ten (10) feet, but further than two (2) feet from the shoulder, Glyphosate may be applied only to the end of the railroad ties. Glyphosate may also be applied by hi-rail application equipment up to two (2) feet from the edge of water crossings, bridge abutments or culverts containing water.

Water Supply Buffer

Water Supply Buffer Public and private water supplies are to be avoided. Herbicides shall not be applied within 200 feet of public water supplies or within 100 feet of private water supplies. For drinking water sources supplied by surface water, the no-spray buffer shall extend from the shoreline of lakes or ponds. At the point where the ROW intersects other surface waters within a designated source protection area (Chapter 21 of the Vermont Environmental Protection Rules, Chapter 21, Water Supply Rule) the buffer shall be 100 feet. In addition, all herbicide applications within a designated source protection area shall be consistent with the provisions of any applicable public water supply Source Protection Plan established pursuant to Chapter 21 of the Vermont Environmental Protection Rules, Chapter 21,Water Supply Rule.

Treatment/Vegetation Management Related Terms:

Physical (Mechanical) Control Methods

Physical (Mechanical) Control Methods that manage vegetation through mechanical or physical means, generally are methods restricted to shrub species. Only trees that interfere with the ROW will be targeted. Currently, mechanical methods are not effective in controlling vegetation within the ballast area.

Mowing: the mechanical process of cutting vegetation, including brush, trees and shrubs, with cutting heads. Mowing includes mechanical vegetation and brush cutting with rotary cutting heads. The cutting heads may be mounted on hydraulic arms that greatly extend the lateral reach of the equipment. These machines can be mounted on off-track, on-track, or hi-rail equipment. Large machines are required for railroad application because of the wide range of conditions found on the ROW.

On-track equipment has the advantage of not having to operate over rough terrain. Off-track equipment can work independently of train movement but production may be limited by the difficulty of moving over rough terrain. Off-track equipment also has the advantage of being able to operate under communication and signal lines.

Railroad safety guidelines may restrict the use of brush cutters within developed or recreational areas. Cutting can be accomplished using chain saws, axes, and other hand tools; however, most railroad cutting is done using rotary-type hydraulic cutting equipment. In certain no-spray and buffer zones, target vegetation may be removed by manual cutting by a ground crew. Practicality prevents the entire adjacent area from being managed with this technique based on the following limitations. Lack of

skilled woodsmen, prohibitive costs, inaccessible areas, and time requirements are just a few of the factors which prevent the railroad from fully utilizing this technique.

Manual removal or mowing of the ballast area is not feasible because of logistic problems and inefficient vegetation control. Cutting heads are too large to fit between or near the rails and can turn stone ballast into projectiles. As discussed earlier, plants growing in the ballast quickly produce roots that prevent the flow of water away from the track area. Mechanical cutting of vegetation in the ballast area would only remove the plant tops. The roots would be left to re-sprout or if killed, will continue to decay, accumulate additional dirt, and hold moisture. Cutting also allows the upper portion of the plant to decay on the site and add to the growing seedbed litter between the stones.

Surfacing: The process of raising, leveling and aligning the railroad track to the desired proper engineering specifications, using computer and laser assisted technology. The surfacing machine lifts the rail and ties and pushes stone ballast under the ties to hold the track.

Ballast Regulating: The process of regulating the ballast stone after surfacing the track, to redistribute the ballast stone between and along the railroad ties and ballast portion of the roadbed to achieve the desired uniformity for industry standards.

Brush Cutting (Machine): The process of cutting trees and brush along the railroad ROW with the use of hydraulic cutting heads on rail mounted machines. These machines are designed to cut along the outside of the ballast area and out along the ROW to clear trees and brush from interfering with the safe passage of trains and equipment, and to prevent hampered visualization.

Brush Cutting (Manually): Manual labor using chain saws and axes to cut trees and brush away from the railroad road bed where developments, recreation fields and obstacles are in close proximity to the road bed where using track mounted brush cutting machines would be a hazard to the public.

Weed Wacking: Manual labor using string or blade type hand held weed whackers. Manual weed whackers are used to clear grasses, weeds and small brush from around signal cases, signal mast, signs, whistle posts, mile posts and other safety related signs along the roadbed that get obscured from sight by long grasses and weeds in sensitive areas.

Girdling: A process of cutting a ring around a tree or shrub through the bark and cambium layer. This inhibits the movement of water and nutrients between the roots and shoots and prevents the flow carbohydrates through the stem. Girdling is most effective during the summer months and is practical for scattered stands of large trees.

Grubbing: Using a grubbing hoe or shovel to dig enough of the plant root system out of the soil to kill the plants. The operation is difficult and time consuming, but effective if properly done. A bulldozer can be used to remove large brush and trees. The best results are achieved when as much of the root system as possible are removed with the plant.

Chemical Control Methods

Chemical Control Methods that include the use of herbicides to manage, control, or eradicate unwanted, targeted vegetation. The categories include:

Pre-emergent Herbicide Program: A program directed primarily to the yards, and incorporates IVM strategies to minimize the amount of herbicide used. The scheduling of a main line or yard track section for a pre-emergent herbicide application will depend on a review of the previous year's vegetation density and control efforts and an estimate of vegetation density for the upcoming season.

Pre-emergent herbicide applications within the yards may be accomplished from a hi-rail spray truck. This on-track vehicle has the advantage of not having to operate over rough terrain. These hi-rail trucks have a rear mounted boom located approximately 18 inches above the ground.

Pre-emergent herbicide applications along the railbed will be made no more frequently than biannually unless conditions warrant rescue treatment which will be based on vegetation density reports.

Post-emergent Herbicide Program: A program directed primarily toward vegetation management on the railroad ROW main lines and branch lines. These areas comprise the bulk of railroad's ROW and accordingly, account for the greatest proportion of herbicide use.

Cut Surface Program: The application of an herbicide to the stump immediately after a cutting procedure which may include mowing. The herbicide is manually painted or squirted directly onto the cut stump surface.

Stem and cut surface treatments are effective year round. As in weed control, all treated areas are later inspected and evaluated. If further treatment is needed, a post-emergent herbicide is selectively applied to unwanted vegetation. Every consideration will be taken to minimize herbicide use while guaranteeing the overall safety of the ROW system.

Section 5: IVM Techniques & Prescriptions

Railbed

The railbed portion (the ballast and shoulder) of the ROW requires total vegetation control. This requirement necessitates that vegetation be removed down to and including the root system.

Physical Control Methods: Weed burning, surfacing, ballast regulation, brush cutting machine, brush cutting manually, weed wacking.

Chemical Control Methods: Herbicides may be utilized for the track bed spray pattern based on the Track Inspection and action threshold analysis. Herbicide selection will be reviewed by the Vermont Pesticide Advisory Council.

An herbicide control program can be modified into an integrated vegetation management approach depending on the area to be treated, target species, time of application, and category of herbicide.

Bridges, Culverts, and Water Crossings

- Open deck bridges, such as some over water, will not be treated.
- Roadbed approaches to bridges will be treated up to the abutment backwall, reduced as necessary to maintain required setbacks to sensitive areas.

Physical Control Methods: Weed burning, surfacing, ballast regulation, brush cutting machine, brush cutting manually, weed wacking, girdling, and grubbing.

Chemical Control Methods: cut surface treatment and post emergent herbicide application.

Sensitive Areas

Physical Control Methods: Weed burning, surfacing, ballast regulation, brush cutting machine, brush cutting manually, weed wacking, girdling.

Chemical Control Methods: None.

ROW Area Adjacent to the Shoulder

Grade Level Road Crossings

At grade level road crossings vegetation must be controlled to provide safe lines of sight between motorists and rail traffic.

Physical Control Methods: weed burner, surfacing, ballast regulation, brush cutting machine, brush cutting manually, weed wacking, girdling, grubbing.

Chemical Control Methods: cut surface treatment, pre and post emergent herbicides.

Railroad Signals, Signal Cases and Signs

The area around railroad signals, signal cases and signs will be maintained weed free providing a safe line of sight between the engineer and the signals or signs, and to permit maintenance of this equipment.

Physical Control Methods: brush cutting manually, weed wacking, girdling, grubbing.

Chemical Control Methods: post emergent herbicides.

Inside Curves

In the area adjacent to the shoulder, on the inside of curves, low growing vegetation must be maintained to allow railroad personnel/employees on the trains to inspect trains as they move around the curves.

Physical Control Methods: weed burner, surfacing, ballast regulation, brush cutting machine, brush cutting manually, weed wacking, girdling, grubbing

Chemical Control Methods: cut surface treatment, pre and post emergent herbicides

Railroad Yards

Railroad yards must be maintained weed free to allow safe and efficient operation, reduce fire hazards, and permit proper inspection of railroad track.

Physical Control Methods: weed burner, surfacing, ballast regulation, brush cutting machine, brush cutting manually, weed wacking, girdling, grubbing

Chemical Control Methods: pre and post emergent herbicides

Section 6: State of Vermont Guidelines for Permit Applications (This section also includes sensitive area requirements)

The following guidelines are intended for vegetation managers or other parties responsible for completing pesticide permit applications. Please review with Section IV, 4, of the *Regulations for Control of Pesticides* for additional information and requirements.

General

Vermont requires an approved permit for all ROW treatments. Permits are required prior to treating all transmissions lines, highways, airport approaches, pipelines, railroad and railroad yards. Permits are not required to treat the following areas: electric power sub-stations, pole yards, storage yards, pipeline sub-stations, highway garages and storage areas, airport runways, taxi-strips and storage areas.

Permit application forms are provided by the Vermont Agency of Agriculture, Food and Markets. A completed application form must be filed by April 1 of the year in which spraying will occur. Applications must be signed by a company officer. Fourteen (14) copies of the completed application form should be submitted to the Agency. NOTE: Incomplete applications will be returned.

All applications received by the Agency must be reviewed by the Vermont Pesticide Advisory Council (VPAC). Pursuant to 6 V.S.A. Section 1102 (d) (1), VPAC must review the application and make recommendation to the Secretary of Agriculture. The Secretary takes action on the permit once a recommendation is received from VPAC.

VPAC begins to review the applications at its March meeting. All applicants will be notified of the date and time of their application review. An application will be review by VPAC only if a representative of the applicant is present at the scheduled meeting.

All railway ROW permits will be issued with the understanding that ballast maintenance is prohibited for thirty (30) days following the application of herbicides, regardless of which herbicide is used. This includes the use of all ballast regulator and tamper equipment. The <u>only</u> exception to this restriction is if there has been sufficient rainfall (at least one inch) in the area, following herbicide application, and if approval has been granted by the Agency.

Maps

When the application is for a segment of line that has never been treated, the application must be accompanied by two (2) sets of geodetic maps in 7.5 minute scale or orthophoto maps. If a map is currently on file with the Agency, only one (1) map needs to be submitted. The front of each map must be clearly identified by the utility name. If maps have been submitted previously for the same ROW, you only need to submit one map unless they are not in the 7.5 minute scale or if there have been changes to the ROW lines. Please note: Photocopies of maps will not be accepted.

Applicants must take their maps to the Water Supply Division of the Agency of Environmental Conservation (DEC). DEC will assist applicants in identifying public water supplies along the ROW. Private water supplies along the ROW which the applicants have been notified of shall also be marked on the maps. Once completed, applicants must submit these maps along with the application to the Agency.

Notification

The applicant is required to publish a notice of its intent to spray a ROW once its application has been filed. A copy of the proposed publication must be filed with the Agency prior to it being published. The advertisement notice must be published not less than 25 days nor more than 60 days before spraying is to start. The advertisement notice must be published for two (2) successive weeks in every county affected by the proposed spraying. Newspapers of record for each county are listed in Appendix B of Vermont's Regulations for Control of Pesticides. If the newspaper is daily, publications shall be made on Thursdays. The regulations require that the ad be at least two (2) columns wide by three (3) inches high.

The publication is required to contain the following information:

a) The name and address of the applicant;
b) Identification of the ROW area(s) to be sprayed;
c) Names(s) of the town(s) where the spraying will be done;
d) Approximate date of the herbicide application;
e) A statement that a permit has been requested from the Secretary of Agriculture, Food and Markets;
f) The method by which the herbicide is to be applied;
g) The chemicals to be used;
h) The name, address and telephone number of a person to contact for further information on the spray project;
i) The address and telephone number of the Agriculture Agency and a statement that identifies it as the agency to contact with questions or comments; and
j) A statement warning residents along the proposed spray area that waters and other environmentally sensitive areas near the spray area should be protected and that it is the resident's responsibility to notify the ROW contact person of any private water supplies near the ROW.

In addition to newspaper publications, the applicant is required to provide notification to residents by one of the following methods:

a) Radio announcements - three (3) spot messages per day on two (2) area radio stations during the two week period immediately prior to the commencement of spraying;
b) Notification via U. S. mail to residents adjacent to the spray area, at least two weeks prior to spraying;
c) A printed statement hand-delivered to residents adjacent to the spray area at least ten (10) days prior to the commencement of spraying.

It is the applicant's responsibility to notify the Agency of the notification options it intends to use and the dates that notice will be given. The content of the notice must be provided to the Agency prior to actual notice being given.

Flagging

The applicant must flag all public and private water supplies, as well as any other sensitive areas designated by the Secretary of Agriculture, Food and Markets in the permit. Flagging must be done prior to the commencement of spraying. Spraying shall not be conducted near flagged areas. It is the applicant's responsibility to provide its certified applicators with a copy of the approved permit and the ROW map(s).

Pesticide Minimization

All ROW spraying must be done by certified applicators or by persons working under the direct supervision of a certified applicator. All herbicide applications should be done in a manner and under weather conditions that: (1) minimize the extent and duration of foliar brownout and (2) prevent herbicides from entering areas outside of the ROW.

Buffer Strips

The Secretary of Agriculture will establish buffer strips to protect waters of the State. Factors included in the establishment of buffer strips include: the type of spray operation being conducted, properties of the chemicals being used and the characteristics of the area involved.

Ground applications

For foliar applications, the Agency has established buffer strips of 30 feet to water's edge for all transmission lines, pipelines and highway brush control applications. For applications to the roadbed of railways and highways, a buffer strip of 15 feet where the ROW parallels water and 30 feet at water crossings shall be maintained. Water supplies will require buffer strips of at least 100 feet for individual supplies and 200 feet for public supplies. In addition, we recommend extreme caution when herbicides are applied for brush control within 100 feet of domiciles. We recommend stem injection treatment around domiciles and the use of anti-drift agents when using mechanized equipment.

Other

Utilities can request to treat within the buffered areas specified above by completing Part C of the application. Other sensitive areas located next to the ROW should be protected by a suitable buffered area on the case-by-case basis. This should be negotiated by the utility company with the landowner or resident.

Labels/MSDS/EPA Fact Sheets

All applications must be accompanied by current labels and Material Safety Data Sheets (MSDS) for each pesticide formulation. These can be obtained through either the manufacturer or distributor of the pesticide formulation. Current EPA Fact Sheets applicable to the active ingredient(s) found in each pesticide formulation must accompany each application when available (when one exists).

Preparation for Herbicide Application

1. Basic Requirements

   To protect the public welfare and eliminate adverse impacts on the environment, railroad herbicide application crews must have an operator who is licensed and certified in the State of Vermont. Applicators must also have a licensed and certified Field Supervisor who reports daily to the railroad representative or other qualified railroad personnel/employee who is assigned to this task. The railroad is responsible for adherence to this VMP by railroad personnel/employees or their contractor. Applicators must follow all railroad safety regulations and all herbicide label directions.

   Daily Field Report of Vegetation Control Activities

The daily field report of Vegetation control activities will be filled out each day by operators doing the work. The daily field report will include, but not be limited to:

- Date
- Vehicle and Equipment Numbers
- Track Name, Number, and Designation

- Weather

- Wind Velocity at time 6am 9am 12noon 3pm 6pm
- Wind direction at time 6am 9am 12noon 3pm 6pm
- Temperature at time 6am 9am 12noon 3pm 6pm
- Rain (in inches) at time 6am 9am 12noon 3pm 6pm

- Acres Treated

- Roadbed Area
- Area Adjacent to the Shoulder
- Mainline
- Sidings
- Branch
- Industrial Track
- Bridge
- Crossings
- Daily Summary

- Beginning Time
- Ending Time
- Hours Treating
- Total Hours Reported

- Contractor Person on Job (list each individual)
- Railroad Person on Job (list each individual)
- Daily Summary of Chemicals Applied

- Name
- EPA Establishment No.
- EPA Registration No.
- Concentrate: gals/lbs.
- Mix Rate and Application Rate per Acre

- Herbicide Application Log

In addition to a daily Field Report, a Herbicide Application Log will be filled out. The herbicide log will include, but not be limited to:

- Time
- Mile Post and Location
- Spray Type and Meter Reading
- Remarks: Spray Plan, City, Vegetation, Weather, etc.
- Condition of Vegetation Along ROW

2. Herbicide Application

The applicator shall follow label and State regulations on how to handle, mix or load herbicide concentrate on a ROW within a sensitive area. Whenever possible, the applicator will handle, mix or load herbicide while parked on a non-porous surface such as concrete or asphalt.

At the time of treatment, before the application begins, the herbicide applicator will review the sensitive areas, maps, and records with a qualified railroad personnel/employee. The railroad representative will alert the operator of the spray vehicle about the location of boundary markers or sensitive areas readily identifiable in the field so that the application can be regulated accordingly. In no-spray areas, as the applicator passes the boundary, the applicator will verify that no herbicide is deposited in the area with the assistance of another employee.

Water for mixing of herbicide will be obtained from ponds or streams using approved anti-siphon devices.

Section 7: Community Right-to-Know Requirements, Emergency Actions, and Accident Reporting

This Section incorporates Vermont Act 31, An Act Relating to Community and Worker Right-to-Know of 1985, and accident reporting requirements as they affect the production, use or storage of pesticides. The requirements affect certified commercial and noncommercial applicators, certified private applicators, licensed applicator companies, Class A Dealers, those persons working under a certified applicator and pesticide producing establishments. These requirements are also applicable to those individuals that are required to be licensed or certified under Section II.

1. Emergency Actions

   A person responsible for the application, storage or handling of a pesticide upon knowledge of an accident involving such Pesticide shall immediately take actions intended to protect Human health and the environment, including but not limited to emergency containment measures and notification as described within this section.

2. Emergency Notification
   a. All Class A,B and C Dealers, certified commercial and noncommercial applicators, certified private applicators, licensed pesticide applicator companies, pesticide producing establishments and persons working for licensed applicator companies under the supervision of a certified applicator, shall report pesticide accidents immediately by telephone to either the:

      Vermont Agency of Agriculture, Food and Markets
      Plant Industry Section
      116 State Street, Drawer 20
      Montpelier, VT 05620-2901
      (802) 828-2431

      Or

      Vermont Agency of Public Safety
      Waterbury State Complex
      103 South Main Street
      Waterbury, VT 05676
      (800) 641-5005 (operating 24 hours/7 days a week)

3. Material Safety Data Sheets (MSDS)

   a. All Class A Dealers, certified commercial and noncommercial applicators, licensed pesticide applicator companies, pesticide producing establishments shall submit a MSDS, to the local fire department for each Class A Restricted Use Pesticide that is produced, stored or used at their facility. All certified private applicators with greater than ten (10) full-time employees shall also submit MSDS as appropriate.

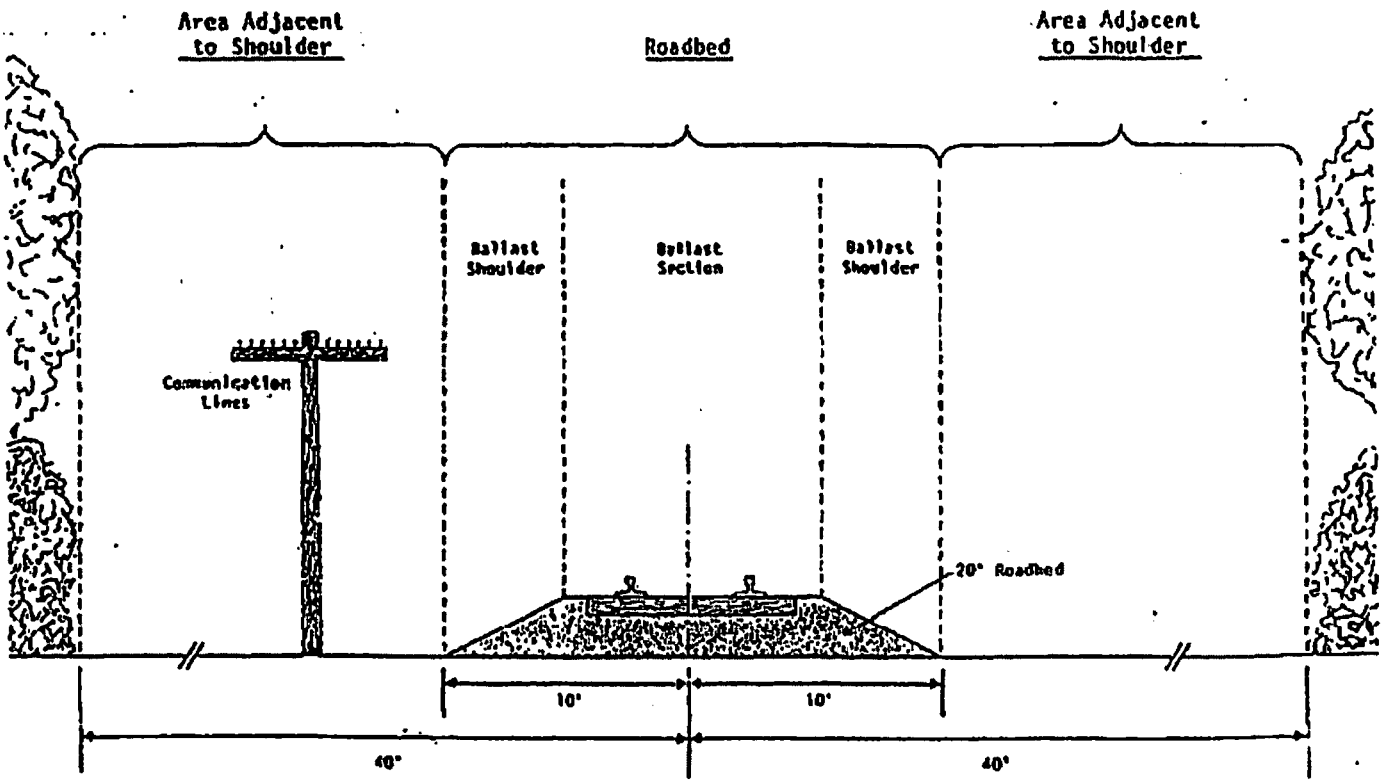
4. Tier Two Pesticide Inventory Report
   a. All Class A Dealers, certified commercial and noncommercial applicators, licensed pesticide applicator companies and pesticide producing establishments shall submit a Tier Two pesticide Inventory Form, to the Agency, for each Class A Restricted Use Pesticide that is produced, stored or used at their facility. All certified private applicators with greater than ten (10) full-time employees shall also submit a Tier Two Pesticide Inventory Form as appropriate.

Appendix A

Railbed Diagram

Figure 1

Railroad Areas Requiring Vegetation Control

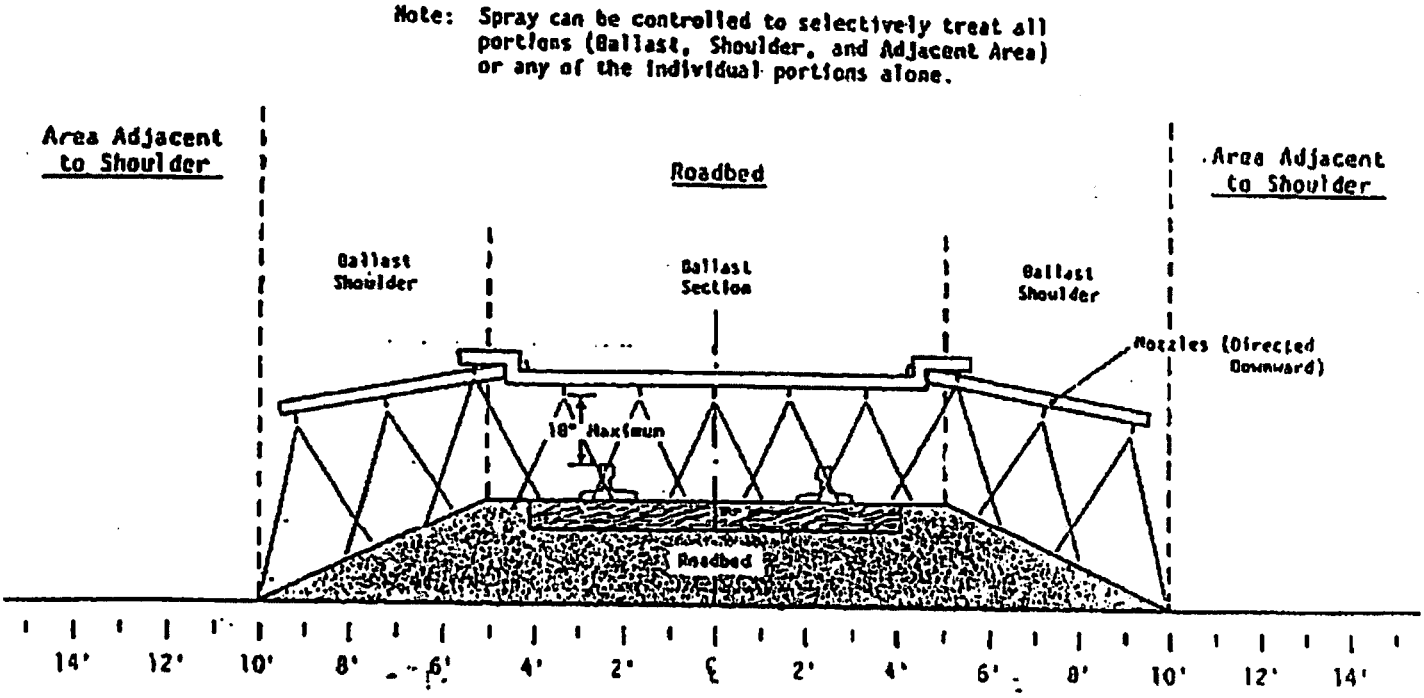


Appendix B

Hi-Rail Spray Truck Diagram

Figure 2

Typical Spray Pattern



Appendix D

Evaluation of Mycotech for Future Stump Treatment Use in ROW

About Mycotech

The active ingredient in Mycotech is a fungal organism which is naturally found in temperate deciduous forests and aids in wood decay. The manufacturer, Myco-Forestis of Quebec, Canada, claims that treating freshly cut stumps with their product inhibits stump sprout re-growth. The fungus colonizes the actively growing stump sprout to reduce growth, then aids in decomposition.

Application

The product is applied as a stump spray to freshly cut stumps from a pre-sealed pressurized backpack. Because the product is said to be effective only when applied to freshly cut stumps, a treating crew would be used in conjunction with a cutting crew.

Evaluation of Feasibility

Positive aspects for using this product are:
- -The product is extremely low in toxicity
- -The product is all natural and organic
- -The product should be able to be used within water buffers

All of these aspects are helpful with public perception.

Challenges with using this product are:
- -It appears as though the manufacturer is out of business
- -The product has a shelf life so it cannot be stockpiled and stored very long
- -Orders for the product would need to be made early, because the propagating of the fungus takes time
- -The effectiveness of the product for this area is still under study

Potential Future Uses for Mycotech along ROW's
- -Use within water buffers
- -Treatment after cutting woody brush at crossings

Other Considerations

Central Vermont Public Service in conjunction with Vt. Forest and Parks has been conducting a test plot in Stockbridge along a power line ROW for about a year. Test results are inconclusive at this time because it may take more that one season for the fungus to fully establish itself. Costs for the product itself are not available to me because the product was given to us for this test, and was not commercially available. Labor costs for backpack type treating were about $250-300/acre. Costs are unknown for a broadcast treatment following brush hogging.

Appendix E

Sample Vegetation Site Inspection Form

Date	RR Line/MP	Type of Vegetation	Type of Problem	Site Description
_____	_____	Δ Vine	Δ Visibility	Δ Ballast
		Δ Brush	Δ Drainage	Δ Shoulder
		Δ Grass/Herb	Δ Obstruction	Δ Curves
		Δ Horsetail	Δ Fire Hazard	
		Δ Other: _____	Δ Other: _____	Δ Other: _____

Notes:_____

Date	RR Line/MP	Type of Vegetation	Type of Problem	Site Description
_____	_____	Δ Vine	Δ Visibility	Δ Ballast
		Δ Brush	Δ Drainage	Δ Shoulder
		Δ Grass/Herb	Δ Obstruction	Δ Curves
		Δ Horsetail	Δ Fire Hazard	
		Δ Other: _____	Δ Other: _____	Δ Other: _____

Notes:_____

Date	RR Line/MP	Type of Vegetation	Type of Problem	Site Description
_____	_____	Δ Vine	Δ Visibility	Δ Ballast
		Δ Brush	Δ Drainage	Δ Shoulder
		Δ Grass/Herb	Δ Obstruction	Δ Curves
		Δ Horsetail	Δ Fire Hazard	
		Δ Other: _____	Δ Other: _____	Δ Other: _____

Notes:_____

Date	RR Line/MP	Type of Vegetation	Type of Problem	Site Description
_____	_____	Δ Vine	Δ Visibility	Δ Ballast
		Δ Brush	Δ Drainage	Δ Shoulder
		Δ Grass/Herb	Δ Obstruction	Δ Curves
		Δ Horsetail	Δ Fire Hazard	
		Δ Other: _____	Δ Other: _____	Δ Other: _____

Notes:_____

Date	RR Line/MP	Type of Vegetation	Type of Problem	Site Description
_____	_____	Δ Vine	Δ Visibility	Δ Ballast
		Δ Brush	Δ Drainage	Δ Shoulder
		Δ Grass/Herb	Δ Obstruction	Δ Curves
		Δ Horsetail	Δ Fire Hazard	
		Δ Other: _____	Δ Other: _____	Δ Other: _____

Notes:_____

Date	RR Line/MP	Type of Vegetation	Type of Problem	Site Description
_____	_____	Δ Vine	Δ Visibility	Δ Ballast
		Δ Brush	Δ Drainage	Δ Shoulder
		Δ Grass/Herb	Δ Obstruction	Δ Curves
		Δ Horsetail	Δ Fire Hazard	
		Δ Other: _____	Δ Other: _____	Δ Other: _____

Notes:_____

Appendix H

Public Relations Protocol for Vegetation Managers

Guidelines for Handling Public Inquiries:

1. Be Professional
   - Focus on the issue.
   - Be polite

2. Always Have Literature Available
   - Sample Label
   - MSDS
   - Other Relevant Literature

3. Keep Records of Contact
   - Get name, address, and telephone number
   - Distribute literature through website address or mail
   - If a special accommodation request is made, instruct the person to download the "special accommodations request form" and fill it out.
   - Resolve complaints and address concerns in a timely manner

4. Special Accommodations Requests
   - After receiving the request in writing, respond and mail the request form to the appropriate person at the Agency of Agriculture.

Be prepared to respond to commonly asked questions such as:

- What are herbicides and why are they used?
- Do herbicides affect birds?
- If my garden becomes contaminated, is it safe to eat the vegetables?
- What kinds of precautions are taken to make sure that pesticides don't get into groundwater supplies?
- What happens if herbicides wash from the treated area into my pond? How does this affect the fish?

Appendix I

Railroad Rights-of-Way – Special Accommodation Request Form

Name: _____

Address: _____

_____

_____

Date: _____

Request (Please be as specific and detailed as possible): _____

_____

_____

_____

_____

_____

Signature: _____

Railroad Response: _____

_____

_____

_____

_____

Date of Response: _____

Name of Representative: _____

Signature: _____

Agency of Agriculture Response: _____

_____

_____

_____

_____

Date of Response: _____

Name of Representative: _____

Signature: _____

Follow-up with Individual Making Request (summarize): _____

_____

_____

_____

_____

_____

Date of Final Follow-up: _____

Name of Representative: _____

Signature: _____