

# Five Year Vegetation Management Plan 2014-2018



**nationalgrid**

10/18/2013



# National Grid and the environment



We, at National Grid, will be the foremost international electricity and gas company, delivering unparalleled safety, reliability and efficiency, vital to the wellbeing of our customers and communities.

We are committed to being an innovative leader in energy management and to safeguarding our global environment for future generations.

Investing in, and operating a safe, and reliable gas and electricity supply network uses energy and raw materials, and produces waste. Our effect on the environment and the communities we serve depends on how we and our supply chain work.

We will face these challenges by deploying best practice throughout our operations, by engaging on national and international energy issues and by supporting renewable energy targets. We will show leadership by working with others to deliver a more sustainable future.

## **We are committed to:**

- ◆ reducing the effect our activities have on the environment by considering whole life environmental costs and benefits in our business decisions
- ◆ using resources efficiently through good design, using sustainable materials, responsibly refurbishing existing assets, and reducing and recycling waste
- ◆ reducing the effect our business has on climate change by decreasing our emissions of greenhouse gases by 45% by 2020 and by 80% by 2050
- ◆ respecting the environmental status and biodiversity of the places we work, aiming to enhance areas for the benefit of local communities or the natural environment

- ◆ managing the risks associated with sites where we have responsibility for dealing with contamination associated with past operations
- ◆ helping consumers reduce their dependency on fossil fuels by giving them access to more sustainable energy and through innovative energy efficiency programmes
- ◆ working with governments and regulators to help them develop and deliver more effective environmental policies and targets
- ◆ continually improving our management systems to prevent pollution, reduce the risk of environmental incidents, and comply with environmental laws, policies, charters and other commitments to which we subscribe
- ◆ making sure that our employees have the training, skills, knowledge and resources they need to meet our environmental commitments
- ◆ openly sharing our performance with employees, members of the public and others, and giving them the opportunity to comment on our performance
- ◆ requiring those working on our behalf to demonstrate at least the same level of commitment to the environment and creating a culture where best practice can be shared.

Steve Holliday  
Chief Executive

**nationalgrid**

The power of action.™

April 2009



## **TABLE OF CONTENTS**

1. INTRODUCTION	1
2. THE PRIMARY GOAL AND OBJECTIVES OF THE VMP	3
3. RIGHTS-OF-WAY VEGETATION AND IDENTIFICATION OF INCOMPATIBLE TARGET VEGETATION	4
4. INTEGRATED VEGETATION MANAGEMENT AND RATIONALE FOR USE	7
5. VEGETATION MANAGEMENT AND OPERATIONAL GUIDELINES	11
6. VEGETATION MANAGEMENT CONTROL METHODS	14
7. JUSTIFICATION OF SELECTIVE HERBICIDE APPLICATIONS	21
8. DEFINITION, IDENTIFICATION AND TREATMENT OF SENSITIVE AREAS	25
9. ALTERNATE LAND USE	31
10. INDIVIDUALS SUPERVISING AND DEVELOPING THE IVM PROGRAM	32
11. REMEDIAL SPILL AND EMERGENCY PLAN	34

## **LIST OF TABLES**

TABLE 1.	HERBICIDE USE RATES	9
TABLE 2.	CONTROL STRATEGIES FOR SENSITIVE AREAS	26
TABLE 3.	HERBICIDE MANUFACTURERS	35
TABLE 4.	STATE AGENCIES	35
TABLE 5.	EMERGENCY SERVICES	36
TABLE 6.	NATIONAL GRID'S CONTACTS IN THE CASE OF A SPILL OR ACCIDENT	36
TABLE 7.	Local Boards of Health/Town Hall	36

## **APPENDICES**

APPENDIX 1	333 CMR 11.00, RIGHTS-OF-WAY REGULATIONS
APPENDIX 2	LIST OF MUNICIPALITIES THROUGH WHICH NATIONAL GRID MANAGES RIGHTS-OF-WAY
APPENDIX 3	CHAPTER 132B
APPENDIX 4	CHAPTER 85, SECTION 10
APPENDIX 5	DEPARTMENT OF FOOD AND AGRICULTURE WETLAND DECISION
APPENDIX 6	PREFACE TO 310 CMR 10.00
APPENDIX 7	SENSITIVE AREAS: ILLUSTRATIONS OF NO-SPRAY AND LIMITED SPRAY- AREAS
APPENDIX 8	REMEDIAL PLAN TO ADDRESS SPILLS FORM
APPENDIX 9	BIBLIOGRAPHY



# 1. INTRODUCTION

The purpose of this Vegetation Management Plan (VMP) is to outline the National Grid USA Electric Companies (hereafter referred to as National Grid)<sup>1</sup> five year plan for managing vegetation in compliance with 333 CMR 11.00 (Appendix 1).<sup>2</sup> Removing incompatible vegetation is necessary on transmission and distribution rights-of-way, and around associated structures and facilities to ensure safe, reliable delivery of electric service. Tall growing tree species must be prevented from growing into or falling onto the lines. Dense woody vegetation, vines, noxious<sup>3</sup> (invasive plant species, nuisance and poisonous vegetation), and all vegetation that interferes with access must be removed from around structures, access roads and anywhere in which they prevent access to the rights-of-way for inspections, maintenance, repairs and in emergencies.

National Grid manages approximately 20,000 acres and 1,500 miles of rights-of-way within the Commonwealth of Massachusetts through the municipalities listed in Appendix 2. These rights-of-way extend from the western border of the Commonwealth through Worcester County, the Merrimack Valley, the North Shore, and the Southeast down through to the Attleboro area and Somerset. They traverse all types of terrain from steep mountainous topography to rolling hills and level lowlands, and from remote, relatively inaccessible locations right through high density population centers.

Taking this variety of landscape conditions into consideration, National Grid applies an Integrated Vegetation Management (IVM) approach to controlling vegetation on its rights-of-way. IVM is the utility variation of Integrated Pest Management (IPM) in which the pest is incompatible vegetation. IPM/IVM is the conscientious use of

---

<sup>1</sup>National Grid companies with rights-of-way in Massachusetts include Massachusetts Electric Company, New England Power Company and New England Hydro Transmission Electric Company.

<sup>2</sup>National Grid's VMP takes into account not only 333 CMR 11.00 and Chapter 132B, but all applicable state and federal regulations that mandate the management of utility rights-of-way including but not limited to: all pertinent clauses in Chapter 85 of the Acts of 2000; MESA; MGL c. 131 A and 321 CMR 10.00; 310 CMR 10.00 and 310 CMR 22.00; 310 CMR 40.0000; applicable Federal Energy Regulatory Commission standards including NERC Standard FAC-003-1, Commissioner Order 693, FAC-003-2 (effective July 1, 2014), and all applicable Federal Occupational Safety and Health Act, Department of Transportation and Department of Environmental Protection regulations.

<sup>3</sup>"NOXIOUS WEED.—The term "noxious weed" means any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the United States, the public health, or the environment." (PUBLIC LAW 106–224—JUNE 20, 2000, TITLE IV—PLANT PROTECTION ACT).

appropriate management techniques to control pests in a program designed to minimize the risk of unreasonable adverse effects on human health and the environment.

National Grid's IVM program brings together a combination of treatment methods and an understanding of the variety of New England ecosystems and the built environment.

## 2. THE PRIMARY GOAL AND OBJECTIVES OF THE VMP

The primary goal of this VMP is to outline the standard operating procedures for vegetation management operations on National Grid's rights-of-way. Its purpose is to document National Grid's IVM Program standards, practices and procedures.

The VMP is intended to provide a basic source of information for state and municipal officials and any interested parties regarding National Grid's vegetation management program. It also provides guidance for the technicians contracted by National Grid to carry out the vegetation management treatment program.

The following items are, therefore, individual objectives that must be taken into consideration as part of the primary goal of National Grid's vegetation management program:

- To ensure the reliable delivery of electric service to our customers;
- To maintain an optimum three to five year maintenance cycle for all rights-of-way<sup>4</sup>;
- To ensure that vegetation management operations are conducted in a safe, effective manner and in conformity with federal and state laws, regulations, and if applicable, permit conditions;
- To treat sensitive areas listed in 333 CMR 11.04 according to regulatory and National Grid policy as areas that require special consideration during vegetation management operations;
- To allow for unplanned tasks for which all precautions are taken to utilize the correct treatment methods and to protect sensitive areas (construction, restorations, hazard tree removal, etc.);
- Following the procedures in 333 CMR 11.05(4)(d), to maintain the flexibility necessary to accommodate unique situations and the need for more appropriate techniques as they arise (in accordance with regulations, scientific advances, operational experience and/or comments from municipalities, state agencies & contractors);
- To have a National Grid representative respond quickly to any questions or complaints from the public and/or governmental agencies that relate to rights-of-way vegetation management.

---

<sup>4</sup>Maintenance cycles are the years between treatments.

### **3. RIGHTS-OF-WAY VEGETATION AND IDENTIFICATION OF INCOMPATIBLE TARGET VEGETATION**

More compatible non-target vegetation live on electric rights-of-way than incompatible target vegetation. In fact, National Grid's rights-of-way are one of the primary remaining early successional ecological communities<sup>5</sup> in New England. These low growing plant communities help discourage the establishment of incompatible vegetation, do not hinder access and do not generally interfere with the lines. Plant species that are generally encouraged on the rights-of-way include herbaceous growth and shrubs that mature less than 12 feet in height, unless due to their location or attributes they interfere with the function of the rights-of-way. As a result, many plant and animal species use our rights-of-way as their homes, feeding grounds or nurseries. This early successional landscape, however, is not, by nature, stable; it is instead the sustained result of the IVM program established on National Grid's rights-of-way in the late 1960's.

Vegetation that obscures the right-of-way corridors and/or grows tall enough to interfere with the lines is considered incompatible vegetation and must be removed as targets. Incompatible vegetation includes trees and limbs, tall growing shrubs, vegetation growing around substations, structures, access roads, gates, and anywhere vegetation impedes access to the rights-of-way and equipment.

The primary incompatible plant species are trees, generally defined as woody plant species that mature at heights exceeding 15 feet. Trees must be removed or controlled within the cleared width and along the edges of National Grid's rights-of-way because they are capable of growing tall enough to grow into or fall onto the lines causing electric service outages. Examples of incompatible vegetation include, but are not limited to, maples, oaks, ash, cherries, birches, beeches, spruce, hemlocks and pines.

In rare isolated instances trees may be left where the electric lines are high enough off the ground so that mature trees will not interfere with the operation of the line. Also, those species that are under the purview of the Natural Heritage and Endangered Species Program of the Massachusetts Division of Fisheries and Wildlife

---

<sup>5</sup> A simplified definition of early successional ecological communities is low growing vegetation including grasses, herbaceous and shrub species and the wildlife species that inhabit them.

(NHESP) will be treated on a case by case basis.

Certain categories of non-tree species are also considered incompatible vegetation, some due to their location and others because of their nature. All woody vegetation on/or encroaching upon existing roads or pathways or immediately adjacent to line structures or equipment will be controlled to provide adequate access to structures, equipment and along the rights-of-way. These include shrubs and vines, including, but are not limited to, Viburnum, Mountain Laurel, Bush Honeysuckle, Grape Vines, Virginia Creeper, etc.

If no permanent access route exists along a right-of-way, a pathway may be created during the treatment cycle and maintained in a suitable location by managing all woody vegetation within the selected route. Woody vegetation must be removed in these areas to ensure access to and along the right-of-way and line structures for safe, efficient inspection, maintenance and emergency operations.

Plant species that pose an environmental or safety problem will be removed whenever practical. The categories of these plant species types that cause safety problems are noxious vegetation plant species including nuisance and poisonous plant species that have heavy thorn growth or dermal toxicity and may create hazards for people working on or traversing the right-of-way. These also include invasive plant species that poses environmental problems, some of which also fit one of the first two categories of noxious vegetation.

Poisonous vegetation poses a health hazard to National Grid personnel, contractors and the public-at-large, which can lead to increased incidences of first aid and OSHA recordable incidents. Mechanical methods do not reduce the spread of these populations, particularly Poison Ivy and Poison Sumac, therefore National Grid plans to use herbicides to spot treat poisonous plants at sites under its rights-of-way identified as having a high risk of posing a health hazard.

Other types of noxious and nuisance vegetation poses a risk to the safety and health of all individuals working on or traversing a right-of-way and can further impede a rapid response in an emergency. These plants have heavy thorns, dense foliage and/or impenetrable stems; examples include, but are not limited to, federal and Massachusetts classified noxious vegetation such as Multi-floral Rose, Common &

Glossy Buckthorn, and Blackberries, as well as nuisance vegetation such as Hawthorne, Greenbrier and dense populations of grapevines.

Invasive plant species create hazards for the environment. Invasive plant species have become an increasing concern throughout Massachusetts in areas that include rights-of-way corridors where they can spread rapidly and then move into the adjacent landscape. According to the Massachusetts Invasive Plant Advisory Group, "Invasive plants" are non-native species that have spread into native or minimally managed plant systems in Massachusetts. These plants cause economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems...."<sup>6</sup> Some examples of invasive plant species commonly found on rights-of-way include, but are not limited to, Japanese Knotweed, Multi-flora Rose, Oriental Bittersweet and Glossy Buckthorn (some of these also fit the noxious vegetation category).

To ensure the accurate identification of incompatible and compatible vegetation, all vegetation management contractors are required to supply personnel familiar with the vegetation typically found growing on utility sites.

---

<sup>6</sup><http://www.massnrc.org/mipag/invasive.htm>.

## **4. INTEGRATED VEGETATION MANAGEMENT AND RATIONALE FOR USE**

National Grid has one of the oldest IVM programs in the Commonwealth of Massachusetts, adopting this multi-faceted approach to rights-of-way vegetation management in the late 1960's. Following the "Purpose" of 333 CMR 11.00, National Grid has, and continues to utilize, an IVM program that "...minimize our impact on human health and the environment while allowing for the benefits to public safety provided by the selective use of herbicides."

National Grid's approach relies on reducing the amount of herbicides used; using selective herbicides/application techniques; timing applications for maximum effect; avoiding fixed application schedules; using mechanical control techniques where appropriate, and encouraging low growing plant communities. These techniques are applied to individual rights-of-way on a three to five year treatment cycle when incompatible vegetation averages heights of six to ten feet and low to medium average densities.

National Grid's IVM program actually begins with understanding the concept of ecological succession. Plant life is by its nature unstable, it is, however, governed by relatively predictable processes of change in composition or structure known as succession. In New England, succession strives towards the climax forest, but is interrupted by natural or man-made disturbances both intentional and accidental, which can lead back to earlier stages. National Grid's goal is to encourage early successional landscapes including wetlands, vernal pools, heaths, barrens, scrub land, fields and meadows, all of which, if left alone, are not stable; all of which dominate the landscape of utility rights-of-way under an IVM program and all of which are ideally suited to the requirements of the right-of-way. An additional benefit to this management strategy is that these early successional communities are generally populated by diverse, well-dispersed species that include many of New England's plant, animal and insect species, including many of those that are threatened or endangered.

IVM, as applied to electric utility rights-of-way, therefore is an environmentally responsible means of combining chemical and mechanical treatment methods (mowing, side pruning, hand-cutting and herbicide applications) with an understanding of the stages of ecological succession and interspecies competition. The resulting right-of-

way corridor is dominated by vegetation below economically damaging heights that could otherwise interfere with the delivery of electric service. IVM has many variations, but here in New England, where the practice first began, IVM is scheduling treatment crews to target incompatible vegetation as selectively as possible and then letting early successional ecological communities help maintain compatible vegetation between treatment programs. In this interim period competition (for light, moisture, and nutrients), wildlife depredation (browsing/feeding) and other ecosystem processes inhibit the germination and growth of incompatible woody vegetation, primarily trees.<sup>7</sup>

These biological processes or natural controls<sup>8</sup> lower the dependence on chemical and mechanical controls. Inhibiting the process of plant succession, however, requires the use of all three components of IVM. All three depend upon the others in a continuous cycle that employs the unique advantages of each. Without combining all three, incompatible plant species develop increased stem densities that require more intense control measures, and natural succession runs its course, forcing vegetation management activities to start at ground zero every treatment cycle. Thus narrow, one-dimensional management techniques, while frequently less expensive initially, decrease biodiversity and increase the impact of long-term vegetation management activities on the environment.

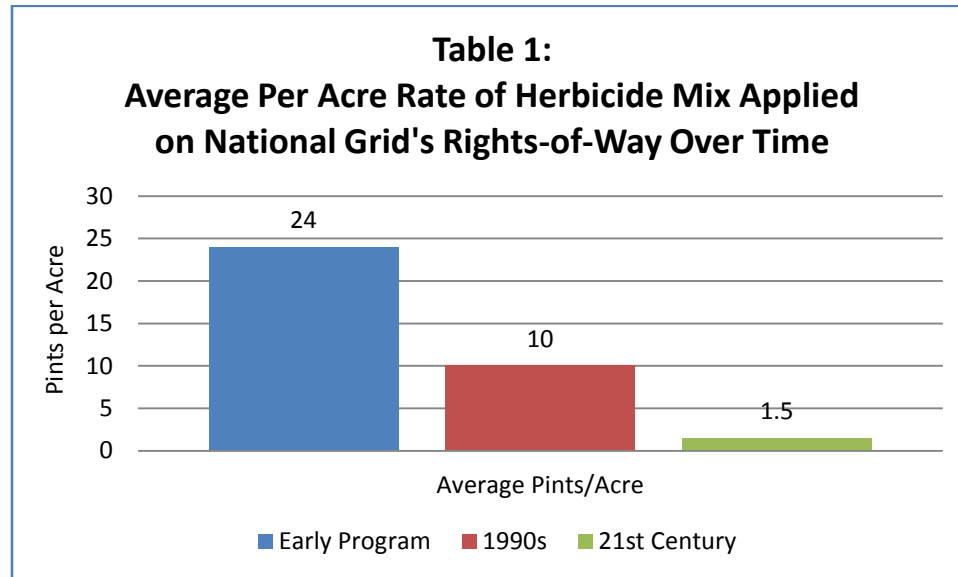
For example, a mechanical only program cannot control the roots of incompatible vegetation resulting in increased stem densities of resprouting vegetation that grows at a rapid rate. Likewise, there are areas of a utility right-of-way that cannot be treated

---

<sup>7</sup>Yahner. "Wildlife Response to More than 50 years of Vegetation Maintenance on a Pennsylvania U.S., Right-of-Way": 123; Christopher A. Nowak & Benjamin D Ballard. "A Framework for Applying Integrated Vegetation Management on Rights-of-Way." *Journal of Arboriculture* 31(1) (January 2005): 28-37; Richard H. Yahner "State Game Lands 33 Research and Demonstration Project—57 years of Continuous Study on the Shawville to Lewiston 230-kV line of First Energy (Penelec). 2009: 9; Yahner. "2009 Annual Report to Cooperators. Green Lane Research and Demonstration Project: 23 Years of Continuous Study." (2009): 8; Yahner. "Wildlife Response to More than 50 years of Vegetation Maintenance on a Pennsylvania U.S., Right-of-Way." *Journal of Arboriculture* 30(2) (March 2004): 123 United States Environmental Protection Agency. "Fact Sheet: Integrated Vegetation Management." EPA 731-F-08-010 (Oct. 2008).

<sup>8</sup>National Grid recognizes that in addition to using the stages of ecological succession and interspecies competition to limit the germination and growth of incompatible vegetation, there are direct biological applications techniques. For example, the release of two leaf feeding beetles (*Galerucella californiensis* and *G. pusilla*) can help control Purple Loosestrife (*Lythrum salicaria*). While National Grid does not rule out the potential use of these application techniques in limited areas, with approximately 20,000 acres of treatment area and the composition of our primary target species, they are not currently a significant part of our IVM program.

with herbicides. Combining the direct use of appropriate chemical and mechanical treatments with an understanding of ecological succession, therefore lengthens the time between management cycles, reduces the amount of herbicide applied per acre and limits the need for intense mechanical controls.



Following this approach has, over time, significantly reduced the per-acre application rate of herbicide formulations at National Grid (see Table 1).<sup>9</sup> In the early stages, when herbicide applications first replaced a pure mechanical program, our rights-of-way were dominated by high stem densities of incompatible tree species. As a result, the average rate per acre of applied herbicide formulations was approximately three gallons (24 pints). Around, fifteen years ago, as years of selective herbicide applications sustained a diverse desirable vegetation cover, the average rate per acre was approximately 1-1½ (8-10 pints) gallons per acre. Currently, the average rate is approximately 1 pint to 2 quarts per acre. Studies in New York have documented similar reductions in herbicide use through stable plant community management.<sup>10</sup>

National Grid's IVM program also recognizes and manages instances in which landscape changes prescribe the IVM techniques. Control methods are adapted or

<sup>9</sup>National Grid Transmission Forestry Herbicide Use Summary Records.

<sup>10</sup>C.A. Nowak, C.A. and L.P. Abrahamson, "Vegetation Management on Electric Transmission Line Rights-of-Way in New York State: The Stability Approach to Reducing Herbicide Use", Proceedings of the International Conference on Forest Vegetation Management, Auburn University, April 1993.

limited to suit the management situation. These are areas of a right-of-way in which geologic, geographic, climactic, environmental and legal factors along with economic, agricultural, social and recreational uses of the landscape affect the application of IVM management techniques. Treatment methods are determined by soil type, moisture levels, elevation, density and growth rates; land use patterns such as golf courses, inhabited areas, Christmas tree farms, active pasture and crop lands, or where individual alternate control agreements are in place with landowners. These landscapes limit or alter the applied treatment methods. For example, trees might not grow in well-kept lawns but incompatible vegetation may still grow into structures, and street trees need to be trimmed.

By the selective applications and judicious use of herbicides in combination with mechanical controls and an understanding of ecological succession, National Grid's rights-of-way are meeting environmental and management goals. Taking a multi-faceted approach minimizes the disadvantages and maximizes the benefits of each IVM component, thereby reducing the environmental impact and the financial cost of vegetation management while simultaneously increasing the overall effectiveness of the program.

## **5. VEGETATION MANAGEMENT AND OPERATIONAL GUIDELINES**

National Grid retains independent contractors for all vegetation management treatment activities and requires that these contractors comply with all applicable state and federal laws and regulations, and National Grid vegetation management specifications. Furthermore, contractor performance and compliance with this VMP is monitored and evaluated by National Grid Foresters.

### ***Vegetation Management Guidelines***

National Grid's IVM program is applied to the full width of each right-of-way to remove or control all incompatible vegetation. Vegetation management activities must result in 100% control or removal of all incompatible target plant species greater than or equal to six feet in height and a minimum of 90% control or removal of all incompatible vegetation less than six feet in height.

With a few exceptions, all incompatible tree species will be removed or controlled during a treatment operation. This includes all woody vegetation and vines growing on or encroaching upon access roads, gates, or on or within ten feet of guys, poles and towers within the cleared width of the right-of-way. Treatments will also extend around the perimeter of substations following all sensitive area restrictions.

The only exceptions are trees in or edging yards, visual screens and trees or shrub species specified by NHESP in the Priority Habitat of state-listed species. All exceptions, however, must be maintained at an acceptable height or condition that will not exceed minimum vegetation clearance distances from the lines before the next maintenance cycle.

National Grid uses two types of visual screens, shrub and tree/shrub, which screen the general public from views of structures and substations. They are maintained at sites where, in the opinion of National Grid, people may find the view of structures or substations objectionable. These sites include, but are not limited to, locations where rights-of-way cross roads,

recreational areas and inhabited areas.

Sensitive areas will be treated per 333 CMR 11.04. Vegetation management operations on such sites are designed to prevent any unreasonable adverse environmental effects. These no-spray and limited spray areas will be maintained using the appropriate control methods (see Table 1 & Appendix 7).

Conifers are generally not treated with herbicides since most species do not resprout. One exception to this general guideline is pine species that do resprout, particularly Pitch Pine, which may be treated on a limited basis with herbicides. Another exception is where White Pine regeneration has seeded in large thick carpets and mowing might be more destructive than an herbicide application.

In cases where large areas of high density incompatible species have exceeded maximum herbicide treatment heights, it may be more practical to do a mechanical treatment followed in one or two growing seasons by an herbicide treatment to obtain effective control.

Right-of-way access will be through the use of established roadways whenever possible. The contractor will obtain permission to enter a right-of-way by any other means in advance.

Unreasonable site damage or destruction during any phase of the vegetation management operation by the contractor, his agents or employees, must be repaired immediately to the satisfaction of National Grid; National Grid will determine what constitutes unreasonable site damage.

## ***General Operational Guidelines***

The National Grid Forester will inform the contractor(s) which rights-of-way will be treated, the range of treatment dates and the possible methods, materials and mixing rates. National Grid will supply treatment restrictions data, maps and written instructions outlining any special treatment considerations or instructions for each right-of-way. No work will be done until the contractor has the appropriate data, permits, restriction lists, mixing rate instructions and licensed staff unless authorized by National Grid.

The contractor must provide:

- Appropriately licensed or certified supervisors who understand all aspects of the contracted treatment and who are responsive to the guidance of National Grid;
- Supervisors who effectively manage treatment crews to ensure the satisfactory completion of the contract;
- Supervisors who effectively communicate with the public ;
- Experienced and/or trained workers, who are appropriately licensed or certified;
- Workers who conduct themselves professionally at all times;
- The appropriate equipment maintain the highest practical level of efficiency and effectiveness;
- Appropriately calibrated herbicide application equipment;
- Equipment in good visual and working condition;
- Completed paperwork.

The contractor must:

- Comply with all applicable federal and state laws and regulations;
- Have a copy of this VMP;
- Have all treatment crews carry a copy of the current Yearly Operational Plan (YOP);
- Have all treatment crews carry National Grid right-of-way maps.

In conclusion, vegetation management operations must be conducted according to this VMP and the written instructions of National Grid. Failure to do so is grounds for removal of the crew from the treatment site and termination of the vegetation management contract.

## 6. VEGETATION MANAGEMENT CONTROL METHODS

Mechanical and chemical controls work together to support the viability of early successional communities, therefore, National Grid utilizes a combination of hand cutting, mowing, selective pruning, selective foliar treatments, low volume basal treatments and cut stump treatments. Based on a three to five year cycle,<sup>11</sup> the treatment methods used on any given right-of-way are selected based on timing, site sensitivity, species composition and density, site access, topography and treatment methods.

National Grid inspects rights-of-way for incompatible vegetation density, height and composition. A right-of-way is then scheduled for treatment when incompatible vegetation height averages six to ten feet or densities reach low to moderate levels. These inspections are important because although treatment cycles should remain relatively consistent with the use of our IVM program, short term changes in growth conditions, site disturbances or the effectiveness of past treatments may affect the schedule on individual rights-of-way.

The advantage of a flexible IVM program is the ability to apply the appropriate treatment methods to meet the conditions of individual rights-of-way. As the sole means to control vegetation, mechanical controls are a short-term solution. With the exception of most conifer species, cut vegetation re-sprouts, resulting in significantly thicker stem densities. Selective herbicide application treatment methods effectively remove vegetation that would otherwise compete with and dominate the desired early successional ecological communities. In some areas, however, mechanical controls are the preferred method, sometimes in combination with the appropriate herbicide treatment method: on vegetation over 12 feet tall; on non-sprouting conifers (with exceptions); in no-spray sensitive areas; in visual screens; around structures; on access roads; in areas of thick, impenetrable vegetation, and where large areas of high density incompatible species exceed maximum herbicide treatment heights.

---

<sup>11</sup>Extending treatment cycles results in average tree heights that exceed ten feet and high densities. This requires the use of more herbicide to get proper coverage of the resulting larger tree crown area. Since the coverage is more difficult on taller trees, it increases the chance of improper coverage, off-target drift and unsatisfactory results. Deferring treatment even one year beyond their optimum treatment cycle can result in an increased herbicide use of over sixty percent (National Grid Transmission Forestry Herbicide Use Summary Records).

## ***Mechanical Control Methods***

### ***Hand Cutting***

*Hand cutting* is the mechanical cutting of incompatible vegetation using chain saws or brush saws, loppers or hand pruners:

- Hand cutting may be conducted at any time of the year;
- Incompatible vegetation is cut as close to the ground as practical;
- Slash from the operation is cut and scattered so as to lay as close to the ground as practical, but not exceeding two feet in height.

Hand cutting is used to protect sensitive areas; around structures, gates and access roads; to control incompatible vegetation greater than 12 feet in height; where herbicide use is prohibited by regulation or easement restriction; on non-sprouting conifer species greater than two feet in height, and on sites where terrain, site size or sensitivity renders mowing impossible or impractical.

### ***Mowing***

Mowing is the mechanical cutting of vegetation using large brush mowers mounted on rubber tired tractors or tracked vehicles:

- Mowing may be used at any time of the year except when deep snow precludes operations;
- Selection of specific equipment is based on terrain, vegetation size and equipment availability;
- Mowing is restricted by steep slopes, rocky terrain, obstructions, wet sites with deep, soft soils, and debris on the right-of-way.

Mowing is used on sites where herbicide use is prohibited by regulatory or easement restriction, where a large number of the stems of incompatible species have exceeded maximum control heights, where access is impeded by high woody vegetation density and access is required in the short term, and where terrain, site size and sensitivity permit the efficient use of the equipment.

### ***Selective Pruning***

Selective pruning is the mechanical removal of the tops or encroaching limbs of

tall-growing tree species to prevent them from growing into, or falling onto, the lines:

- Selective pruning may be done at any time of the year;
- Pruning will be accomplished using aerial lifts mounted on trucks, skidders or tracked vehicles or, if terrain or obstructions prevent equipment access, by climbing crews.
- Slash will be disposed of by dicing, chipping or piling, at the discretion of National Grid:
  - Slash will not be left in waterways, trails or roads, or in such a manner that would permit it to wash into these areas;
  - The placement of cut woody vegetation must comply with applicable State Fire Marshall's regulations;
  - Slash from yards or recreational sites will be chipped or removed to an adjacent area or removed;
  - Slash will be piled in isolated areas or windrowed in parallel lines along the right-of-way in piles that should not exceed two feet in height and that do not obstruct access along or to the right-of-way;
  - Dicing will be accomplished by cutting the slash in pieces so that it lies as close to the ground as practical;
  - All slash and debris of cherry species will be removed immediately after treatment in active pastures to prevent any harm to livestock.
- Chipping is used when dicing and/or piling are prohibited or impractical:
  - Wood chips will be removed from highly sensitive areas;
  - When left on site, wood chips will be scattered uniformly over the site at depths not exceeding four inches or piled in isolated areas;
  - No chips will be left in wetlands.

This method is used in maintaining visual screens in the limited areas where tree screens are desired and selective removals are not practical; on individual state or town regulated road crossings where it is required or practical; along the edge of rights-of-way where pruning will reduce or eliminate the threat of outages, and to provide landowners with a viable alternative to the otherwise mandatory removal of trees for electric line maintenance and integrity that are aesthetically desirable to the property owner.

## ***Chemical Controls***

Herbicide applications include foliar, basal and cut stump surface treatments. Herbicides are applied as mixtures consisting of herbicide formulation(s), adjuvants, carriers and additives. The timing of herbicide applications, materials, and mixture rates

will be listed in National Grid's YOP, twenty-one day notice letter and/or forty-eight hour newspaper notice as required under 333 CMR 11.06 and 11.07 and Chapter 85 of the Acts of 2000, Section 10 (see Appendices 1 & 4). National Grid's first choice is to use herbicides on the *Sensitive Area Materials List* administered by the Massachusetts Department of Agricultural Resources (DAR).<sup>12</sup> If the situation is appropriate, National Grid, however, reserves the right to use other EPA and Massachusetts approved herbicides, following all restrictions in 333 CMR 11.04. The National Grid Forester(s) will further specify to the treatment crews the particular materials and mixture rates for individual rights-of-way according to conditions and timing of the treatment(s). Treatment crews will not deviate from National Grid's specifications without the approval of the Forester(s).

Individual herbicides have different levels of effectiveness on incompatible vegetation and under different conditions. No herbicide is equally effective on all plant species and certain herbicides are more effective on certain plant species than others. National Grid selects the herbicide or combination of herbicides in conjunction with the appropriate treatment method to obtain the most effective control on each right-of-way.

Individual herbicides and treatment methods also have distinctive physical effects and environmental behaviors. For example, certain herbicides or treatment methods cause foliar brownout while others do not, and certain herbicides have been formulated for use in wet environments while others have not. The selection of specific herbicides or herbicide mixtures coupled with the appropriate treatment methods is made with equal consideration given to the visual and environmental sensitivity of a right-of-way or site within a right-of-way. As a result, herbicides will not be used in certain areas if site sensitivity, regulations, restrictions, plant species composition or height recommend otherwise.

### ***Selective Foliar Treatments***

Selective foliar treatments are the application of materials to fully developed leaves, stems, needles or blades of incompatible vegetation. Selective foliar treatments

---

<sup>12</sup> A current list of the *Sensitive Area Materials List* and individual *Fact Sheets* on these herbicides are available at: <http://www.mass.gov/eea/agencies/agr/pesticides/rights-of-way-vegetation-management.html>.

are limited to the season when leaves are fully developed in the spring until fall and the beginning of leaf abscission—i.e., when leaves begin dropping off the trees.

The equipment for selective foliar treatments includes: hand-pump backpack sprayers, motorized backpack sprayer and off-road vehicle mounted hydraulic sprayers. In each case, mixtures are applied as a uniform spray over the plant's entire foliage to only dampen or lightly wet the targeted vegetation, instead of being applied to the point of run-off. This minimizes the amount of herbicide drip onto desirable ground cover.

- Selective foliar treatments are used on hardwood trees and incompatible shrub species below 12 feet in height.
- In general, selective foliar treatments are not applied to conifer species; exceptions to this general guideline will be identified in National Grid's YOPs.
- Foliar treatments are also not used where landowner agreements preclude their use, within visual screens on plant species greater than six feet in height and within mechanical only sensitive areas per 333 CMR 11.04.
- Foliar treatments are allowed in wetland areas where no standing water is present, per the Department of Food and Agriculture Decision, dated October, 1995, concerning the wetland impact study conducted pursuant to 333 CMR 11.04 (4)(C)(2) (Appendices 1, 5 & 6).

### ***Low Volume Basal Treatment***

Low volume basal treatments are the selective application of an herbicide, diluted in specially formulated oil, to wet the entire lower 12 to 18 inches of the main stem of incompatible vegetation. Using a hand pump backpack unit, the oil enables the herbicide solution to penetrate the bark tissue and translocate within the plant. Low volume basal treatments are extremely selective, and when used at appropriate locations are applied at very low per acre rates:

- Optimum vegetation density is low with average heights greater than four feet, within visual screens and in areas where extreme selectivity is necessary;
- This treatment method can be used any time of year except in conditions that prevent adequate access to stems;
- The optimum treatment time frame is in the dormant season when applications are easier due to the lack of foliage and the obstruction caused by grasses and herbaceous growth;
- Restrictions include when snow is too deep or in extremely wet weather;
- Basal treatments are not ideal in high stem densities because of high labor costs and increased herbicide rates per acre.

Low volume basal treatments are used with the same rationale as selective foliar treatments. Basal treatments have the advantage of extending the treatment season into the dormant season thus facilitating the retention of experienced applicators and spreading out the work load. They also have the advantage of being low profile with no noisy motorized equipment and incompatible vegetation is generally controlled without creating brownout when the treatments are completed during the dormant season.

### ***Cut Stump Treatment***

Cut stump treatments are the mechanical cutting of incompatible vegetation followed by an herbicide treatment to the phloem and cambium tissue of the stumps. The cut stump mixture is diluted in water or a non-freezing agent and is ideally applied to freshly cut stumps. Application equipment includes: low-volume backpack; hand-pump sprayers; hand held squirt bottles; paintbrushes, and sponge applicators.

This method is used where maximum control is desirable and/or to reduce the visual impact of vegetation management treatments. It is commonly used:

- To prevent re-sprouts when hand cutting vegetation in preparation for a foliage application;
- To chemically treat incompatible vegetation in sensitive sites where other methods are not possible,
- On all woody vegetation (except non-sprouting conifers) removed from visual screen except within an environmentally sensitive area where restrictions take precedence.

Like basal treatments, cut stump treatments may be used at any time of the year provided snow depth will not prevent cutting the stumps below three inches in height. It is best to avoid during the season of high sap flow, in moderate to heavy rains, and is not practical in moderate to heavy stem densities.

### ***Herbicide Application Restrictions and Guidelines***

Herbicide application will be restricted during certain adverse weather conditions, such as rain, wind or deep snow.

#### ***Rain***

Herbicide applications will not be made during periods of moderate or heavy rain fall:

- Foliar applications are effective in light mist;

- Foliar applications will cease during measurable rainfall that creates leaf runoff;
- Foliar applications interrupted by unexpected rainfall, will not resume until the rain ends and active leaf runoff has ceased;
- Basal and cut stump treatment applications are ineffective during measurable rainfall;
- Basal applications that are interrupted by rainfall will not be resumed until at least fifty percent of the application area of the targeted plants is dry.

### ***Wind***

Wind affects the individual herbicide treatment methods on different levels.

- Basal or cut stump treatments are not affected by all but the most extreme wind conditions because they are applied in such close proximity to the ground.
- During foliar applications, excessive winds can cause damage to compatible vegetation on or off the right-of-way, therefore, to prevent any significant herbicide drift, treatment crews will comply with the following restrictions:
  - During winds strong enough to bend the tops of trees' main stems on the right-of-way, the treatment crew supervisor will periodically observe the foliar application to ensure no significant movement of the herbicide mixture. If the supervisor can see the mixture moving off the targeted plants, applications will immediately stop until the wind has subsided enough to continue.
  - Following the label, all foliar application mixtures will contain anti-drift agents to reduce the potential of herbicide drift beyond the targeted plants:
    - In moderate wind conditions, as per label recommendations, more anti-drift agents may be added, at the discretion of the contractor supervisor.

### ***Deep Snow***

Herbicides will not be applied in deep snow conditions. Deep snow renders it impractical to basally apply herbicides to the lower six inches of the stems or to cut stumps below acceptable maximum height limit.

### ***General Operational Guideline Restrictions***

***Disposal:*** The contractor is responsible for the proper disposal of all excess materials and mixtures in accordance with all applicable federal and state laws, regulations and guidelines.

***Mixing:*** Mixing will take place according to all restrictions in 333 CMR 11.00 and according to the chemical labels.

## 7. JUSTIFICATION OF SELECTIVE HERBICIDE APPLICATIONS

Both regulatory and economic factors dictate the safe, reliable delivery of electric service through our transmission and distribution lines. This requirement necessitates a vegetation management program to control incompatible vegetation. Other regulations require National Grid to minimize the impact our activities have on the environment. National Grid's IVM program allows us to stay in compliance with these various regulations, including 333 CRM 11.00, by maximizing the control of incompatible vegetation while minimizing the use of herbicides through their judicious use. Having analyzed various vegetation management methods, National Grid's chemical direct control methods of choice are the selective herbicide treatments described in Section 6 which in combination with mechanical treatment methods and an understanding of ecological succession, are the most sound and cost effective methods currently available.

Research has determined that when used appropriately herbicides are a safe method of vegetation control and can benefit public safety through selective use.<sup>13</sup> The small amount of herbicide applied selectively at low rates per acre and the herbicide formulations listed in our YOP's are low in acute toxicity, are not known to bio-accumulate and, as applied, and have a short life span in the environment.<sup>14</sup> The *Sensitive Area Material List* is an additional environmental protection tool at our disposal. This list of herbicides helps us further reduce the potential of any negative impact by limiting the herbicide formulations used in the limited spray sensitive areas defined by 333 CMR 11.04. In addition to extensive testing by the Federal EPA before

---

<sup>13</sup>U.S.D.A., Forest Service, "Pesticide Background Statements, Volume 1," *Herbicides, Agriculture Handbook* Number 633, 1984; U.S.E.P.A. *Environmental Stewardship Strategy for Electric Utility Rights-of-Way*, Pesticide Environmental Stewardship Program, Edison Electric Institute Vegetation Management Task Force, August 1996; 333 CMR 11.01, *Rights of Way Regulations*.

<sup>14</sup>(USDA Forest Service, 1984; K.H. Deubert. *Studies on the Fate of Garlon 3A and Tordon 101 Used in Selective Foliar Application in the Maintenance of Utility Rights-of-Way in Eastern Massachusetts*, Final Report prepared for New England Electric et al., 1985; Harrison Biotech, Inc. *A Generic Environmental Impact Report on the Control of Vegetation on Utility and Railroad Rights-of-Way in the Commonwealth of Massachusetts*, Final Report prepared for the Department of Food and Agriculture, Commonwealth of Massachusetts, 1985; N.H. Nickerson, G.E. Moore and A.D. Cutter, *Study of the Environmental Fates of Herbicides in Wetland Soils on Electric Utility Rights-of-Way in Massachusetts over the Short Term*, Final Report prepared for New England Electric et.al., December 1994; Massachusetts Department of Agricultural Resources. *Surface Water Monitoring of Glyphosate used in Rights-of-Way Railroad Vegetation Management (2005–2006)*, Report, November, 2006.

being included on the *Sensitive Area Materials List*, the impact of these herbicides on the environment are put through careful review by DAR and the Massachusetts Department of Environmental Protection.

333 CMR 11.04(4) also limits the use of herbicides around various surface waters. However, it makes an exception to the general rule for public utilities by allowing herbicide treatments within wetlands as long as sensitive area approved herbicides are not sprayed on or within ten feet of standing or flowing water. This exception is based on a study cited in the *DFA Decision Concerning The Wetland Impact Study Conducted Pursuant to 333 CMR 11.04(4)(c)(2)*. This research shows that selective herbicide applications do not adversely affect wetland plant composition or function (Appendix 5). In fact, according to the study by Environmental Consultants, Inc. quoted in the *Decision*, mechanical vegetation control techniques result in a significantly greater impact on wetland composition and function.<sup>15</sup>

The high degree of selectivity and control inherent in selective herbicide applications adds further protections. A potential route for public exposure to herbicides is through drift during foliar treatments. National Grid's vegetation management program does not allow significant drift from foliar treatments by requiring the use of low drift agents, prohibiting treatments in high wind situations and following maximum height limits of incompatible vegetation. Herbicides, particularly when applied selectively by low-volume methods, also dry quickly on the plant surface thereby significantly restricting the potential for dermal exposure. Selective herbicide applications further reduce the visual impact of treatments by eliminating extensive foliar brownouts or the drastic landscape changes cause by less selective herbicide or mechanical treatments.

The success of our selective herbicide application program in minimizing unreasonable adverse effects is evidenced by the thriving early successional ecological communities currently present on National Grid's rights-of-way, which includes the

---

<sup>15</sup>Nickerson et al., 1993; Environmental Consultants, Inc., Study of the Impact of Vegetation Management Techniques on Wetlands for Utility Rights-of-Way in the Commonwealth of Massachusetts, Final report prepared for New England Electric et.al., 1989.

diversity and numbers of observed wildlife species taking advantages of our rights-of-way.<sup>16</sup>

Selective herbicide applications offer varied degrees of selectivity and favor, or release, certain types of plants; for example, broadleaf vegetation can be controlled with little or no impact to grasses. This diversity can only be achieved by periodically and selectively removing vigorously competitive tree species, including their root systems, which is only practical through selective herbicide application.

Selective herbicide applications minimize the amount of manpower, equipment and the impact of both on the environment compared to less selective mowing operations. For example, when used judiciously, they can be much less destructive than mowing to nesting sites and the vegetation necessary for food and cover. The resulting low growing vegetation provides a more open right-of-way with more attractive flowering plants and berries that support an increase in the diversity of wildlife species.

A selective herbicide program is also more cost effective than a purely mechanical program. The comparatively increased density and height of incompatible vegetation promoted by mechanical cutting requires the expenditure of more time and resources to control. Estimates, based on actual costs for the limited cutting currently done at National Grid, indicate that average expenditures for a mechanical cutting program are two to over five times the cost of the current IVM program. The indirect costs not factored into the estimate include lost income from reduced electric service reliability, increased time and costs for line inspections, maintenance and repair, increased insurance costs caused by higher accident rates, and the increased labor costs required to attract workers to perform this type of work.

Mechanical controls are also relatively hazardous to workers, the public and the environment. In a mowing operation, objects including rocks and pieces of wood are thrown by the mower, often long distances. Chain saws can kick back and cause injuries despite safety features and protective leg guards. Small diameter cut stumps left by cutting operations may cause trips, falls or punctured tires. Mechanical only treatment programs also facilitate the spread of injurious thorny or poisonous plants

---

<sup>16</sup>Several research projects demonstrate the positive impacts of selective right-of-way vegetation management to non-target organisms (See Appendix 9).

which results in unsafe conditions for the public, vegetation management and electric line crews. Again, due to their growth habits, rapidly, in thick, impenetrable masses, and their effect on human health, these plants are most practically controlled by herbicide applications.

The use of mechanical equipment always includes the risk of hydraulic fluid, oil and gas spills or leaks, and all mechanical equipment releases petroleum products into the environment in the form of bar and chain oil. These mechanical operations are a necessary and integral part of National Grid's IVM program, but these hazards are an important limitation that needs to be considered as part of the overall decisions made regarding treatment options, especially when compared to the environmental and safety history of the selected herbicides.<sup>17</sup>

The net benefits of including selective herbicide applications in National Grid's IVM program are tied to their role in establishing early successional ecological communities. Not only does reducing the density and inhibiting the growth of incompatible tree species reduce the actual amount of herbicides needed for vegetation control, but low-growing plant cover helps prevent the soil exposure and erosion that can result from rutting caused by mowing. Treatment cycles are lengthened and there are fewer incompatible plant species that require control which reduces both the long and short term ecological impact of vegetation management activities.

---

<sup>17</sup> National Grid's Incident Management System (IMS) is a Safety, Health and Environmental Services' online management tool; Calvert, Geoffrey, Plate, D.K., Das, R., Rosales, R., Shafey, O., Tomsen, C., Male, D., Beckman, J., Arvizu, E. & Lackovic, M. "Acute Occupational Pesticide-Related Illness in the US, 1998-1999: Surveillance Findings From the SENSOR-Pesticide Program", American Journal of Industrial Medicine 45:14-23, 2004; Osha Logging Standard, Scope of this Advisor and the OSHA Standard: "Logging is one of the most dangerous occupations...and the felling of trees with a chainsaw is the most dangerous...."

## 8. DEFINITION, IDENTIFICATION AND TREATMENT OF SENSITIVE AREAS

The general definition of sensitive areas regulated by 333 CMR 11.04 is as follows:

...any areas within Rights-of-Way, including No-Spray and Limited-Spray Areas, in which public health, environmental or agricultural concerns warrant special protection to further minimize risks of unreasonable adverse effects.

Protecting these environmentally sensitive sites is accomplished by defining specific sensitive areas and establishing limited spray and no-spray areas and treatment restrictions within these borders based on the sensitivity of each site and the requirement to minimize any unreasonable adverse impacts within that area.

Sensitive Areas regulated by 333 CMR 11.00 include the following:

### Water Supplies:

- Zone I's
- Zone II's
- IWPA's (Interim Wellhead Protection Areas)
- Class A Surface Water Sources
- Tributaries to a Class A Surface Water Source
- Class B Drinking Water Intakes
- Private Wells

### Surface Waters:

- Wetlands
- Water Over Wetlands
- The Mean Annual High Water Line of a River
- The Outer Boundary of a Riverfront Area
- Certified Vernal Pools

### Cultural Sites:

- Agricultural Areas
- Inhabited Areas

### Wildlife Areas:

- Certified Vernal Pool Habitat
- Priority Habitat.

These sensitive areas consist of no-spray areas in which herbicide use is prohibited, larger limited spray areas where herbicide use is permitted under certain

conditions, general limited spray areas, and areas that require special treatment recommendations (See Table 1 and Appendix 7).

**TABLE 2: CONTROL STRATEGIES FOR SENSITIVE AREAS<sup>#</sup>**

Sensitive Area	Limited Spray and No-Spray Areas (feet)	Control Method	Restriction Code
Public Ground Water Supplies	400'	Mechanical Only	None
Primary Recharge Area	Designated no-spray area or 1/2 mile radius	Mechanical, Recommended Herbicides*	24 months
Public Surface Water Supplies (Class A & Class B)	100'	Mechanical Only	None
	100'-400'	Recommended Herbicides	24 months
Tributary to Class A Water Source, within 400' upstream of water source	100'	Mechanical Only	None
	100'-400'	Recommended Herbicides	24 months
Tributary to Class A Water Source, greater than 400' upstream of water source	10'	Mechanical Only	None
	10'-200'	Recommended Herbicides	24 months
Class B Drinking Water Intake, within 400' upstream of intake	100'	Mechanical Only	None
	100'-200'	Recommended Herbicides	24 months
Private Drinking Water Supplies	50'	Mechanical Only	None
	50'-100'	Recommended Herbicides	24 months
Surface Waters	10'	Mechanical Only	None
	10'-100'	Recommended Herbicides	12 months
Rivers	10' from mean annual high water line	Mechanical Only	None
	10'-200'	Recommended Herbicides	12 months
Wetlands	100' (treatment in wetlands permitted up to 10' of standing water) <sup>+</sup>	Hand Operated Equipment with 5 gal. mix capacity <sup>+</sup> Recommended Herbicides	24 months
Inhabited Areas	100' (for high-pressure foliar only)	Recommended Herbicides	12 months
Agricultural Area (Crops, Fruits, Pastures)	100' (for high-pressure foliar only)	Recommended Herbicides	12 months
Certified Vernal Pools	10'	Mechanical Only when water is present	None
Certified Vernal Pool Habitat	10'-outer boundary of habitat	No treatment without written approval per 321 CMR 10.14(12)	
Priority Habitat	No treatment without written approval per 321 CMR 10.14(12)		

Restrictions: "24 Months": A minimum of 24 months shall elapse between applications.

"12 Months": A minimum of 12 months shall elapse between applications.

\*Commonwealth of Massachusetts recommended herbicides from the *Sensitive Area Materials List*, rates and methods per 333 CMR 11.04.

<sup>+</sup>Per "Decision Concerning the Wetlands Impact Study" (see Appendix 5).

<sup>#</sup>Table Compiled by Jeffrey M. Taylor, Vegetation Control Service, Inc.

Treatment in the limited spray area requires the use of herbicides from the *Sensitive Area Materials List* and the application restrictions in 333 CMR 11.04 or in the case of Priority Habitat, approval of the YOP by NHESP.

The general characteristics of the herbicides included on the *Sensitive Area Materials List* are: low toxicity to humans and other animal species; short term soil persistence; biodegradation of active ingredients, and low soil mobility. It is National Grid's policy to primarily use the herbicides on the *Sensitive Area Materials List*, which means as a rule, in most years and/or areas, limited spray areas do not need to be identified in the field by treatment crews. Instead, they may concentrate on marking the more sensitive no-spray areas.

A current list of the *Sensitive Area Materials List* and individual *Fact Sheets* are available at: <http://www.mass.gov/eea/agencies/agr/pesticides/rights-of-way-vegetation-management.html>. The specific herbicide formulations and mixtures to be used in any given year will be listed in the YOP and the manufacturers' labels and *Fact Sheets* will be included in the appendices of the YOP.

### ***Identification Methods***

Two simple descriptions guide the complex identification of the sensitive areas defined in 333 CMR 11.04: *Readily identifiable in the field* and *Not readily identifiable in the field*. Readily identifiable in the field areas will be treated, identified and when appropriate, marked according to all applicable restrictions listed in 333 CMR 11.00. Not readily identifiable in the field areas will likewise be treated and marked when appropriate, but they are identified by the use of data marked on maps and collected in the YOP and notification processes before the time of treatment.

The individuals assigned the task of identifying and treating sensitive areas in the field will use the appropriate sources and methods from the following list (some of which are already included in National Grid's records):

- National Grid right-of-way maps, records and institutional knowledge;
- Massachusetts Department of Environmental Protection water supply maps available through MassGIS;
- DAR and Municipal Board of Health maps and lists of identified private wells along the right-of-way;

- Correspondence, meetings and input from municipalities within the forty-five day YOP and twenty-one day municipal right-of-way notification letter review and comment periods and the 48 hour newspaper notification (under 333 CMR 11.06 & 11.07 and Chapter 85 of the Acts of 2000);
- Correspondence and meetings resulting from National Grid's abutter notification procedure;
- A point person who verifies identified sensitive areas and any additional areas that may require special precautions;
- United State Geological Survey (USGS) topographical maps;
- Information from contractor's knowledge and records;
- Information from MassGIS;
- Confidential information from NHESP;
- A copy of the YOP and VMP.

The YOPs will contain maps with the most current data available at the time of printing. The maps are a resource and a tool for both the public and the vegetation management crews, therefore, they contain the data needed to identify, mark and treat sensitive areas appropriately. The maps are printed on USGS topographic maps. The most current data available through MassGIS, such as public water supplies and certified vernal pools, and any data that National Grid has collected on items such as private wells are then added on top of the USGS data. At the time of treatment, additional sensitive area information that is collected will be added to the information utilized by National Grid's vegetation management contractors.

As appropriate, sensitive areas will be identified and marked in the field by either National Grid personnel, trained and experienced vegetation management contractor personnel, and/or by individuals trained in the identification of sensitive areas.

### ***Public and Private Drinking Water Supplies***

Public and private drinking water supplies come under the *Not readily identifiable in the field* definition and deserve further discussion due to their sensitivity in relationship to the public.

The appropriate sources and references listed above will be consulted to determine the location of drinking water supplies, and in accordance with 333 CMR 11.04, known drinking water supplies are marked on the YOP maps and identified in the

field. In the various notification processes under 11.06 and 11.07, or at any point, we request municipalities to assist in the identification new water supplies. Identified private drinking supplies within one hundred feet of a right-of-way are included in our permanent records and maps, and when made cognizant of new wells, these will also be identified and added to our records and maps. Landowners are also encouraged to post signs on the edge of the rights-of-way to help identify private water supplies.

The several different limited spray and no-spray areas mandated by 333 CMR 11.04(2)(a-b) for each type of water supply are included in the diagrams and table in Appendix 7. In all cases, contractors will take all measures necessary to mark and/or identify the appropriate no-spray areas for private and public drinking water supplies.

### ***Priority Habitat of State-Listed Species***

National Grid recognizes the importance of the Massachusetts Endangered Species Act, M.G.L.C. 131A, and its significance to right-of-way vegetation management and will comply with all applicable portions of this act and the regulations promulgated thereunder.

321 CMR 10.14, Massachusetts Endangered Species Act Regulations, Part II Exemptions and 333 CMR 11.04(3)(a-c) exempts utility rights-of-way vegetation management from the permit process under the following condition:

The management of vegetation within existing utility rights-of-way provided that the management is carried out in accordance with a vegetation management plan approved in writing by the Division prior to the commencement of work for which a review fee shall be charged, the amount of which shall be determined by the commissioner of administration under the provisions of M.G.L. c.7, § 3B...

To comply with this exemption, National Grid will submit this VMP and our YOPs for approval by the NHESP.

The NHESP has delineated areas as Priority Habitat based on the "Best Scientific Evidence Available" to protect state-listed species from a "take." Under the approval process, details about the Priority Habitat of state-listed species that our activities might affect and management recommendations are shared with National Grid under strict confidentiality agreements. Using this data and best management

practices, National Grid and contract personnel will follow the appropriate vegetation management treatment methods within these sensitive areas taking all practical means and measures to modify right-of-way vegetation management procedures to avoid damage to state-listed species and their habitat.

To identify Priority Habitats, National Grid personnel and vegetation management crews must use proper identification procedures. Contractors are, therefore, required to train their personnel to recognize Priority Habitats using one of the following tools: training meetings, paper maps, GPS coordinates and/or GIS systems.

Provisions of 321 CMR 10.00, Part III, also allow the NHESP to designate Significant Habitat on land in the Commonwealth as a legal easement. Vegetation management activities within Significant Habitats require an Alteration Permit per 321 CMR 11.68. No such designations have been made to date, but in the eventuality that any Significant Habitats are designated on a National Grid right-of-way, we would be notified as an owner of interest. National Grid will, when it becomes necessary, seek a permit under the terms of the coordinated permit review process.

### ***Treatment of Wetlands***

Pursuant to 333 CMR 11.04 based upon the results of two right-of-way wetland impact studies, the Massachusetts Department of Food and Agriculture (now DAR) in consultation with the Department of Environmental Protection and the Right-of-Way Advisory Panel, made a determination that herbicides, when used under the guidance of an IVM program and other conditions as set forth in the determination, have less impact on wetlands than the sole use of mechanical techniques (see Appendices 5 & 6).

Based on the *DFA Decision Concerning The Wetland Impact Study Conducted Pursuant to 333 CMR 11.04(4)(c)(2)*, incompatible vegetation will, therefore, be selectively treated following the recommendations in the *Decision* including the use of sensitive area approved herbicides and a no-spray area on or within ten feet of standing or flowing water.

## 9. ALTERNATE LAND USE

Most National Grid right-of-way acreage, estimated at over eighty percent, is owned by easement rights. This, in general, permits National Grid to construct, operate and maintain the electric lines, control vegetation and access the lines. The easement usually prohibits the landowner from erecting structures, inhibiting access by National Grid and its contractors, growing trees or otherwise interfering with the operation of the electric line. The property owner retains all other ownership rights and may use or restrict the use of the property on the right-of-way in any manner that conforms to the easement.

Alternative land uses that are compatible with the operation of electric utility lines are acceptable on National Grid's rights-of-way. Currently, land uses on rights-of-way include, but are not limited to, parking lots, golf courses, parks, driveways, roadways, crops, pastures, gardens, lawns and Christmas tree farms.

Sometimes landowners request that their property not be treated with herbicides. Through the easement, National Grid purchased the right to maintain vegetation on the right-of-way. National Grid utilizes the safest, most effective management program available. Generally, when the program is described to the property owner and/or the property owner observes the treatment application, their previous concerns are reduced or eliminated. If the property owner still requests that National Grid refrain from using herbicides on that property, National Grid may enter a formal agreement with that property owner. Before executing an agreement, the property owner must agree to maintain the vegetation on the right-of-way, at their expense, within National Grid's specifications. Specifications vary with each individual property, but basically require that woody vegetation be kept below a certain height and clear of access roads, gates, guys, poles and towers. National Grid's policy sets the maximum height criteria as the smaller of 12 feet or at a height such that five years of growth will not put the tree into the line.

## **10. Qualifications of Individuals Developing and Submitting the VMP and Supervising the IVM program**

**The professionals responsible for developing and submitting this plan are:**

Dawn Travalini  
Lead Vegetation Strategy Specialist  
National Grid  
40 Sylvan Road, Waltham, MA  
Tel. 781-907-2448

Ms. Travalini received a B.S. degree in Biology and has completed graduate studies in Forestry. She has been at National Grid since 1993, initially working in the environmental department and then joining the forestry department in 2008. In both positions, she has been involved in the process of completing numerous regulatory compliance documents included National Grid's last VMP and multiple YOPs. She previously worked at Goldman Environmental Consultants and WCH Industries, environmental consulting firms.

She currently serves as a utility company representative on the Department of Agricultural Resources Rights-of-Way Advisory Panel, and is a member of the International Society of Arboriculture, Utility Arborist Association, and Society for Women Environmental Professionals.

Wendy L. Priestley, Ph.D.  
Vegetation Control Service, Inc.  
2342 Main Street, Athol, MA

Her qualifications extend from her education, work experience, and practical experience in the field of herbicide application, crew management and VMP consulting:

She currently holds a Ph.D. from The George Washington University, Washington, DC. In this capacity her research, analytical and organizational skill have aided her efforts in writing Vegetation Management Plans.

She has worked since 1985 for Vegetation Control Service, Inc., a consulting and service company that provides vegetation management programs for utilities, municipalities, private business and landowners throughout New England. In this capacity, she is a certified pesticide applicator and her experience includes both field and administrative experience in IVM programs. Since 1985, she has written or co-

authored a number of Vegetation Management Plans for utilities both in Massachusetts and throughout New England.

**The professionals responsible for supervising this plan are:**

National Grid retains qualified professionals to conceive, design, implement and supervise all phases of vegetation management operations. Vegetation management, especially herbicide application operations, requires an elevated level of technical expertise and experience to design the best integrated management approach and to adequately prescribe the proper treatments to control incompatible vegetation.

Overall supervision of the VMP and YOP's will be performed by:

Anne-Marie Moran  
National Grid  
939 Southbridge Street  
Worcester, MA 01610  
508-860-6925

Coordination of the VMP and YOP's will be performed by National Grid and contract foresters. The contract foresters are responsible for guaranteeing that their field crews comply with the VMP and YOP while the National Grid foresters will supervise the field implementation of the VMP and YOP:

Jason Magoon  
National Grid  
939 Southbridge Street  
Worcester, MA 01610  
508-860-6212

Mariclaire Rigby  
National Grid  
939 Southbridge Street  
Worcester, MA 01610  
508-860-6282

## 11. REMEDIAL SPILL AND EMERGENCY PLAN

This section is offered as a general procedural guide for responding to chemical spills or related accidents (related accidents include but are not limited to fire, poisoning and vehicle accidents). National Grid contracts with independent, professional, certified herbicide applicators that are responsible for the containment, clean up and reporting of chemical spills or accidents. The following is, therefore, only a guide to the items that shall be available to the treatment crew in the event of a chemical spill or emergency:

### ***Types of Chemical Spills that Require Action***

Chemicals include, but are not limited to the following:

- Herbicides
- Bar and Chain Oil
- Motor and Hydraulic Oil/Fluids
- Diesel Fuel
- Gasoline
- Title 3 Hazmat Materials

### ***Required Spill Response Equipment***

As a minimum, the treatment crew should have available on the job site:

- YOP with Emergency Contact List
- Safety Data Sheets (SDS)
- Product Label
- Product Fact Sheets (when applicable)
- Appropriate Absorbent Material
- Shovel
- Broom
- Flagging
- Leak Proof Container
- Heavy-duty Plastic Bags

### ***Personal Contact***

In the event of **Personal Contact** with hazardous chemicals:

- Wash affected area with plenty of soap and water;
- Change clothing which has absorbed hazardous chemicals;
- If necessary, contact a physician;
- If necessary, contact the proper emergency services;
- If necessary, follow the procedures for Major or Minor Spills as outlined in Appendix 8;
- Avoid breathing the fumes of hazardous chemicals.

### ***Clean-up Procedures***

Education and attention will constantly be directed at accident and spill prevention, however, in the event of an unfortunate incident, a spill response check list is included in Appendix 8 as a guide that will be included in the YOP's.

**Reference Tables (information subject to change as necessary)****Table 3: Herbicide Manufacturers**

MANUFACTURER	TELEPHONE NUMBER	SPECIAL INSTRUCTIONS
Albaugh Inc.	800-247-8013	
BASF Corporation	800-832-4357	
Dow Agro Sciences	800-992-5994	
E.I. du Pont de Nemours and Company	800-441-3637	Medical Emergencies
Monsanto	314-694-4000	
Nufarm	877-325-1840	Medical Emergencies
Rainbow Treecare	877-272-6747	

**Table 4: State Agencies**

STATE AGENCY	TELEPHONE NUMBER	SPECIAL INSTRUCTIONS
Massachusetts Pesticide Program	617-626-1700	A.S.A.P. (within 48 hours)
Massachusetts Department of Environmental Protection, Emergency Response Section	Main Office: (888) 304-1133	For emergencies involving reportable quantities of hazardous materials; required info: City/town, street address, site name (if applicable), material
	Southeast Region: (508) 946-2700	
	Northeast Region: (978) 694-3200	
	Central Region: (508) 792-7650	
	Western Region: (413) 784-1100	
Massachusetts Dept. of Public Health, Bureau of Environmental Toxicology Program	(617) 624-5757	
Massachusetts Poison Information Centers	(800) 682-9211	For medical emergencies involving suspected or known pesticide poisoning symptoms

**Table 5: Emergency Services**

EMERGENCY SERVICE	TELEPHONE NUMBER	SPECIAL INSTRUCTIONS
Massachusetts State Police, Central Office	617-566-4500 or 911	
Local Fire / Police Dept.	911	
ChemTrec	800-424-9300	
Clean Harbors	800-OIL-TANK	
Pesticide Hotline	800-858-7378	PST: 6:30 am – 4:30 pm, Web: <a href="http://www.NPIC.orst.edu">www.NPIC.orst.edu</a>

**Table 6: National Grid's contacts in the case of a spill or accident**

Anne-Marie Moran National Grid 939 Southbridge Street Worcester, MA 01610 508-860-6925	Jason Magoon National Grid 939 Southbridge Street Worcester, MA 01610 508-860-66212	Mariclaire Rigby National Grid 939 Southbridge Street Worcester, MA 01610 508-860-6282
--	---	--

**Table 7: Local Boards of Health/Town Hall (to be filled as appropriate in the YOPs)**

TOWN	BOARD OF HEALTH/ TOWN HALL

## **Appendix 1**

### **333 CMR 11.00, Rights-of-Way Regulations**



Page 1 of 18 3/9/2007

### 333 CMR 11.00: RIGHTS OF WAY MANAGEMENT

#### Section

##### 11.01 Purpose

##### 11.02 Definitions

##### 11.03 General Provisions

##### 11.04 Sensitive Area Restrictions

##### 11.05 Vegetation Management Plan (VMP)

##### 11.06 Yearly Operational Plan (YOP)

##### 11.07 Public Notification

##### 11.08 Notice of Modification and Revocation

##### 11.09 Right-of-Appeal

##### 11.10 Penalties

##### 11.11 Rights-of-Way Advisory Panel

##### 11.01: Purpose

The purpose of 333 CMR 11.00 is to establish a statewide and uniform regulatory process which will minimize the uses of, and potential impacts from herbicides in rights-of-way on human health and the environment while allowing for the benefits to public safety provided by the selective use of herbicides. Specific goals of 333 CMR 11.00 are to:

1. Ensure that an Integrated Pest Management (IPM) approach to vegetation management is utilized on all rights-of-way covered by 333 CMR 11.00.
2. Establish standards, requirements and procedures necessary to prevent unreasonable risks to humans or the environment, taking into account the economic, social and environmental costs and benefits of the use of any pesticide.
3. Ensure ample opportunity for public and municipal agency input on potential impacts of herbicide application to rights-of-way in environmentally sensitive areas.
4. Establish a mechanism for public and municipal review of rights-of-way maintenance plans.

##### 11.02: Definitions

For the purposes of 333 CMR 11.00, unless the context clearly requires otherwise, the following definitions shall apply:

Agricultural Area includes, but is not limited to, actively cultivated gardens, greenhouses, orchards, fields, pastures, and other areas under cultivation or agricultural management.

Applicant, any person representing any federal, state or local government or agency, utility, railroad or pipeline, that intends to maintain a right-of-way in the Commonwealth by application of herbicides.

Page 2 of 18 3/9/2007

Associated Surface Water Body, as identified on the most current available maps prepared by the Department of Environmental Protection, any body of water that is hydrologically connected to a Class A surface water source.

Ballast, the coarse gravel or crushed rock on which the ties, tracks and switching, signaling and communication devices of a railroad are laid.

Broadcast, any non-selective herbicide application technique which results in application to all vegetation within a target area.

Certified Vernal Pool, a confined basin depression, certified and mapped by NHESP pursuant to the provisions of 310 CMR 10.57(2)(a)5,6, which, at least in most years, holds water for a minimum of two continuous months during the spring and/or summer, and which is free of adult fish populations.

Certified Vernal Pool Habitat, that vernal pool habitat which has been certified and mapped by NHESP pursuant to the provisions of 310 CMR 10.57(2)(a)5,6 or, in the event that such habitat has not been mapped, the area extending 100 feet horizontally outward from the boundary of any Certified Vernal Pool.

Class A Waters, waters which are designated as a source of public water supply, as defined in 314 CMR 4.05(3)(a).

Class B Drinking Water Intakes, intakes to Class B waters suitable as sources of public water supply with appropriate treatment, as defined at 314 CMR 4.05(3)(b) and as identified on the most current available maps prepared by the Department of Environmental Protection.

Department, the Department of Agricultural Resources.

FIFRA, the Federal Insecticide, Fungicide and Rodenticide Act, Public Law 92-516.

Foliar Treatment, any technique which applies herbicide to leaves of target vegetation. Inhabited Area, any area where people generally live, work or gather, including, but not limited to, any residence, school, hospital, park or recreational facility.

Interim Wellhead Protection Area (IWPA), for public water systems using wells or well fields that lack a Department of Environmental Protection-approved Zone II, an interim wellhead protection area, as that term is defined in the Massachusetts drinking water regulations, 310 CMR 22.02, and as identified on the most current available maps prepared by the Department of Environmental Protection, shall apply. Generally, this is a 1/2-mile radius for sources whose approved pumping rate is 100,000 gallons per day or greater. For smaller sources, the radius in feet is determined by multiplying the approved pumping rate in gallons per minute by 32 and adding 400.

Page 3 of 18 **3/9/2007**

Limited Application Waiver, a waiver from the requirements of 333 CMR 11.05 and 11.06, granted at the Department's sole discretion pursuant to 333 CMR 11.03(14), when the reason for the application is emergency public health or safety or when the application is for one time only.

Limited Spray Area, any area that is both within a Right-of-Way and within:

- (a) any Zone II or IWPA
  - (b) a distance of between 100 feet and 400 feet of any Class A Surface Water Source
  - (c) a distance of between 10 and 200 feet of any tributary or associated surface water body where the tributary or associated surface water body runs outside the Zone A for the Class A surface water source
  - (d) a lateral distance of between 100 and 200 feet for 400 feet upstream, on both sides of the river, of a Class B Drinking Water Intake
  - (e) a distance of between 50 and 100 feet of any identified Private Well
  - (f) a distance of between 10 and 100 feet of any Wetlands or Water Over Wetlands
  - (g) a distance of between 10 feet from the mean annual high water line of any river and the outer boundary of the Riverfront Area
  - (h) a distance of between ten feet from any Certified Vernal Pool and the outer boundary of any Certified Vernal Pool Habitat
  - (i) a distance of 100 feet of any Agricultural or Inhabited Area.
- Low Pressure, pressure under 60 pounds per square inch (psi).

Maps, United States Geological Survey maps of scale 1:25,000 or other maps, as determined by the Department, which are of such accuracy and scale to provide sufficient detail so that sensitive areas can be delineated.

NHESP, the Natural Heritage and Endangered Species Program within the Massachusetts Division of Fisheries and Wildlife.

No-Spray Area, any area that is both within a Right-of-Way and within:

- (a) any Zone I
- (b) 100 feet of any Class A Surface Water Source
- (c) 100 feet of any tributary or associated surface water body where the tributary or associated surface water body runs within 400 feet of a Class A surface water source
- (d) 10 feet of any tributary or associated surface water body where the tributary or associated surface water body is at a distance greater than 400 feet from a Class A surface water source
- (e) a lateral distance of 100 feet for 400 feet upstream, on both sides of the river, of a Class B Drinking Water Intake
- (f) 50 feet of any identified Private Well
- (g) 10 feet of any Wetlands or Water Over Wetlands
- (h) 10 feet of the mean annual high-water line of any river
- (i) 10 feet of any Certified Vernal Pool.

Person, an individual, association, partnership, corporation, company, business organization, trust, estate, the Commonwealth or its political subdivisions, administrative agencies, public or quasi-public corporation or body, or any other

Page 4 of 18 3/9/2007

legal entity or its legal representatives, agent or assignee, or a group of persons.

Person Aggrieved, any person who, because of an act or failure to act by the Department may suffer an injury in fact which is different either in kind or magnitude from that suffered by the general public and which is within the scope of the interests identified in 333 CMR 11.00. Such person must specify in writing sufficient facts to allow the Department to determine whether or not the person is in fact aggrieved.

Private Well, any private drinking water supply identified by the local Board of Health, the well owner or the Department of Agricultural Resources.

Private Well Registry, a registry of private wells located within 100 feet of a right-of-way which is maintained by the Department of Agricultural Resources. Homeowners must notify the Department by completing a registration form which is available directly from the Department or online at the Department website.

Public Ground Water Source, a source of water for a Public Water Supply System, as that term is defined in the Massachusetts drinking water regulations at 310 CMR 22.02.

Public Water Supplier, as defined at 310 CMR 22.02(1), any person who owns or operates a public water supply system.

Right(s)-of-Way (ROW), any roadway, or thoroughfare on which public passage is made and any corridor of land over which facilities such as railroads, powerlines, pipelines, conduits, channels or communication lines or bicycle paths are located.

Rights-of-Way Advisory Panel, a panel established to advise the Department on issues relating to 333 CMR 11.00 and to fulfill specific functions as detailed within 333 CMR 11.05 and 11.11.

River, a river as defined at 310 CMR 10.04 and as identified on the most current available maps prepared by the Department of Environmental Protection.

Riverfront Area, a riverfront area as defined at 310 CMR 10.58(2) and as identified on the most current available maps prepared by the Department of Environmental Protection. In general, this term shall mean the area between the mean annual high-water line of a perennially flowing river and a parallel line 200 feet away.

Selective Application, any application of herbicides, in such a manner that the delivery to the target vegetation is optimized and delivery to non-target vegetation and the environment is minimized.

Sensitive Areas, as defined in 333 CMR 11.04, any areas within Rights-of-Way, including No-Spray and Limited-Spray Areas, in which public health, environmental or agricultural concerns warrant special protection to further minimize risks of unreasonable adverse effects.

Page 5 of 18 **3/9/2007**

State-listed Species, any species on the Massachusetts list of Endangered, Threatened, and Special Concern Species as described in the Massachusetts Endangered Species Act (M.G.L. c. 131A; 321 CMR 10.02).

State-listed Species Habitat, the Estimated Habitats of Rare Wildlife (310 CMR 10.59 and 10.37) and the Priority Habitats for State-listed Species (321 CMR 10.02) as shown on the most recent edition of the Massachusetts Natural Heritage Atlas prepared by NHESP.

Stem Treatment, any technique including, but not limited to, stump, basal, stem, injection, banding, frill, or girdle and any other technique which delivers herbicide at low pressure to the stump, base or stem of the target vegetation.

Surface Water Source, any lake, pond, reservoir, river, stream or impoundment designated as a public water supply in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00, as identified on the most current available maps prepared by the Department of Environmental Protection.

Target Vegetation, any plant species which has the potential to interfere with the operation and safety of the right-of-way.

Touch-up Application, any limited application of herbicides following an initial treatment, which is necessary to achieve the desired vegetation control.

Tributary, as identified on the most current available maps prepared by the Department of Environmental Protection, any body of running, or intermittently running, water which moves in a definite channel, naturally or artificially created, in the ground due to a hydraulic gradient, and which ultimately flows into a Class A surface water source, as defined in 314 CMR 4.05(3)(a).

Vegetation Management Plan (VMP), a long term management plan for the applicant's right-of-way system which describes the intended program for vegetation control over a five year period.

Vernal Pool, see Certified Vernal Pool.

Water Over Wetlands, the ocean or any estuary, lake or pond as defined at 310 CMR 10.04.

Wetland(s), any of the following areas as defined in 310 CMR 10.02(1)(a), (b), (c) and (f):

- (a) Any bank, the ocean
- any freshwater wetland, any estuary
- any coastal wetland, any creek
- any beach, bordering any river
- any dune, on any stream
- any flat, any pond
- any marsh, or any lake
- or any swamp

Page 6 of 18 3/9/2007

- (b) Land under any of the water bodies listed above
- (c) Land subject to tidal action
- (f) Riverfront area.

Wetlands Determination, a written determination of the boundaries of Wetlands and boundaries of areas within 100 feet of Wetlands in accordance with the regulations of the Department of Environmental Protection (DEP) at 310 CMR 10.05(3)(a)1. and 2.. 310 CMR 10.03(6)(b) require applicants not eligible for a public utility exemption to submit these determinations with their VMPs if they will apply herbicides within 100 feet of wetlands and will not submit a Notice of Intent under M.G.L.c. 131, §40, the Wetlands Protection Act. In order to obtain a Wetlands Determination, the applicant should submit a request to the conservation commission on maps of a scale that will enable the conservation commission or Department of Environmental Protection to find and delineate the boundaries of Wetlands and buffer zones within the vicinity of the right-of-way herbicide management area. To be considered "valid", the Wetlands Determination should be made no sooner than six months immediately prior to the submission of the Vegetation Management Plan. The Wetlands Determination shall cover the period of the Vegetation Management Plan only and shall expire at the end of the five year period of that Vegetation Management Plan.

Yearly Operational Plan (YOP), the yearly operational plan which describes the detailed vegetation management operation for the calendar year consistent with the terms of the long term Vegetation Management Plan.

Zone A, as identified on the most current available maps prepared by the Department of Environmental Protection, the protective land area for a Surface Water Source, Class A water source, Tributary, or Associated Surface Water Body defined in 310 CMR 22.02 as:

- (a) the land area between the Class A surface water source and the upper boundary of the bank;
- (b) the land area within a 400 foot lateral distance from the upper boundary of the bank of a Class A surface water source, as defined in 314 CMR 4.05(3)(a); and
- (c) the land area within a 200 foot lateral distance from the upper boundary of the bank of a Tributary or Associated Surface Water Body.

Zone I, as identified on the most current available maps prepared by the Department of Environmental Protection and as defined at 310 CMR 22.02, the protective radius required around a public water supply well or wellfield. For public water system wells with approved yields of 100,000 gallons per day (gpd) or greater, the protective radius is 400 feet. Tubular wellfields require a 250 foot protective radius. Protective radii for all other public water system wells are determined by the following equation: Zone I radius in feet =  $(150 \times \log \text{ of pumping rate in gpd}) - 350$ .

Zone II, as identified on the most current available maps prepared by the Department of Environmental Protection and as defined at 310 CMR 22.02, the aquifer recharge area for a public water supply well or wellfield.

### 11.03: General Provisions

- (1) No person shall use an herbicide for the purpose of clearing or maintaining a right-of-way unless appropriately certified by the Department, or licensed by the Department and working under the on-site supervision of an appropriately certified applicator.
- (2) No person shall use an herbicide for the purpose of clearing or maintaining a right-of-way except in accordance with a Vegetation Management Plan (VMP) and a Yearly Operational Plan (YOP) as approved by the Department. The YOP shall be available at the work site at all times during herbicide applications and be made available to the Department and municipal officials including the Conservation Commission and Board of Health upon reasonable request.
- (3) No person shall handle, mix or load an herbicide concentrate on a right-of-way within 100 feet of a sensitive area.
- (4) The perimeter of any sensitive areas which are not readily identifiable on the ROW shall be identified with a clearly visible marker system, consistent with the VMP, prior to any herbicide application.
- (5) No foliar application of herbicides shall be used to control vegetation greater than 12 feet in height except for side trimming.
- (6) No herbicide shall be applied when the wind velocity is such that there is a high propensity to drift off target and/or during measurable precipitation, and no person shall apply herbicides in such a manner that results in drift into any No-spray Area.
- (7) No person shall apply herbicides by aircraft for the purpose of clearing or maintaining a right-of-way.
- (8) No touch-up applications shall be carried out except under the following conditions:
  - (a) Touch-up applications must occur within 12 months of the initial application.
  - (b) All applicable public notification procedures of M.G.L. c. 132B, § 6B, as outlined in 333 CMR 11.07(1) and (3), are followed.
  - (c) No more than 10% of the initially identified target vegetation on the applicant's right-of-way in any municipality may be treated and the total amount of herbicide applied in any one year shall not exceed the limits specified by the label or Yearly Operational Plan.
  - (d) The Department may impose such additional restrictions or conditions on the use of herbicides as it deems necessary to protect public health and the environment.
- (9) The Department will maintain mailing lists of individuals and groups desiring to obtain notices on various aspects of the Program.

Page 8 of 18 3/9/2007

(10) No person shall apply any herbicide identified as a Potential Ground Water Contaminant pursuant to 333 CMR 12.00 to a right-of-way.

(11) No person shall use an herbicide for the purpose of clearing or maintaining a right-of-way unless that person has obtained the most current available map of public ground water sources from the Department of Environmental Protection.

(12) No person shall use an herbicide for the purpose of clearing or maintaining a right-of-way unless that person has done one or more of the following:

(a) obtained a current list of identified Private Wells within 100 feet of the right-of-way from the Board of Health, or

(b) obtained a current list of all private wells, within 100 feet of the right of way from the Department of Agricultural Resources private well registry; or (c) followed an alternative Private Well identification method outlined in an approved YOP.

(13) The applicator shall provide any employee of any state agency, or authority as defined in M.G.L. c. 3, § 39, when such employee is, within a right-of-way, using pesticides, supervising the use of pesticides, or present during the use of pesticides, with personal protective equipment and clothing. Applicators should note that other federal or state laws or regulations pertaining to pesticide applications may require this personal protective equipment to include protections according to Material Safety Data Sheets (MSDS's), the product label, and any other supporting technical data supplied by the manufacturer.

(14) Notwithstanding the provisions of 333 CMR 11.03(2) or other provisions of 333 CMR 11.00, the Department may, at its sole discretion, issue Limited Application Waivers to applicants wishing to apply herbicides to clear or maintain rights-of-way without VMPs or YOPs, but only under the following conditions:

(a) The applicant must demonstrate either:

1. that the application will not occur more than once in a five year period unless a VMP and a YOP are prepared and all other requirements of 333 CMR 11.00 are met; or

2. that the application is necessary to protect public health or safety.

(b) The applicant must still adhere to all public notification requirements established at 333 CMR 11.07(1) and (3).

(c) The applicant must provide the Department with a letter establishing the concurrence of the chief elected official or board of selectmen of the municipality where the application is to be made.

(d) The applicant may only use herbicides on the Department's "Herbicides Recommended for Use in Sensitive Areas List."

(e) If the application could impact Wetlands, the Department recommends that the applicant send a copy of its application for a Limited Application Waiver to the Department of Environmental Protection's Division of Wetlands and Waterways no less than 21 days before the proposed application.

(f) It should be noted that, with certain exceptions for public utilities, wetlands regulations at 310 CMR 10.03(6)(b) currently require

Wetlands Determinations prior to any application within 100 feet of a Wetland.

Limited Application Waivers shall be issued solely at the Department's discretion, and the Department may impose such additional restrictions or conditions on the use of herbicides as it deems necessary to protect public health and the environment.

#### 11.04: Sensitive Area Restrictions

##### (1) General

In any sensitive area:

(a) No more than the minimum labeled rate of herbicide for the appropriate site, pest, and application method shall be applied.

(b) Herbicides shall only be applied selectively by low pressure, using foliar techniques or basal or cut-stump applications, or other method approved for use by the Department.

(c) No person shall apply herbicides for the purpose of clearing or maintaining a right-of-way in such a manner that results in drift to any area within 10 feet of standing or flowing water in a wetland; or area within 400 feet of a public drinking water supply well; or area within 100 feet of any Class A surface water used as a public water supply; or area within 50 feet of a Private Well.

(d) Only herbicides specified by the Department as acceptable for use in sensitive areas pursuant to the Cooperative Agreement executed between the Department of Agricultural Resources and the Department of Environmental Protection on July 1-2, 1987, or future amendments thereto, shall be used in sensitive areas. Applicants proposing to use an herbicide which has been registered for use on rights-of-way but has not yet been evaluated pursuant to the provisions of the Cooperative Agreement may request that such herbicides be evaluated pursuant to said provisions. For an herbicide that has been evaluated pursuant to the provisions of the Cooperative Agreement, applicants proposing to use such herbicide in a manner inconsistent with the terms and conditions of use imposed in the guidelines may request a modification or waiver of such terms or conditions. A request for such modification or waiver shall provide a detailed rationale for use, with all relevant data including but not limited to environmental fate, efficacy and human health effects of the proposed herbicide. Such herbicides and/or uses shall be subject to the evaluation standards adopted by the Departments of Agricultural Resources and Environmental Protection in the Cooperative Agreement.

##### Commentary

Applicants not eligible for the public utilities exemption from the Wetlands Protection Act outlined at 310 CMR 10.03(6)(a), who wish to apply pesticides registered for use in Massachusetts to rights-of-way, may choose to apply herbicides determined to be suitable for use in sensitive areas in accordance with the provisions of the Cooperative Agreement mentioned above or, alternatively, such applicants may

proceed pursuant to the provisions of 310 CMR 10.00 as authorized by M.G.L. c. 131, § 40.

(e) The Department may impose such additional restrictions or conditions on the use of herbicides within or adjacent to sensitive areas as it determines necessary to protect human health or the environment. Such changes may be proposed by a municipal agency or individual during the public comment period.

(f) In the event of a question or dispute as to which setback applies to a sensitive area, the most restrictive setback shall apply.

## (2) Water Supplies

### (a) Public Ground Water Sources

1. No herbicides shall be applied within a Zone I.
2. No herbicides shall be applied within a Zone II or IWPA unless:
  - a. A minimum of 24 months has elapsed since the last application to the site; and
  - b. Herbicides are applied selectively by low pressure, using foliar techniques or basal or cut-stump applications.

### (b) Class A Public Surface Water Sources, Associated Surface Water Bodies, Tributaries and Class B Drinking Water Intakes

1. No herbicides shall be applied within 100 feet of any Class A public surface water source.
2. No herbicides shall be applied within 100 feet of any tributary or associated surface water body located within the Zone A of a Class A public surface water source, or within 10 feet of any tributary or associated surface water body located outside of the Zone A of the Class A public surface water source.
3. No herbicides shall be applied within a lateral distance of 100 feet for 400 feet upstream of any Class B Drinking Water Intake.
4. No herbicides shall be applied within a distance of between 100 feet from any Class A surface water source and the outer boundary of any Zone A, or within a distance of between 10 feet and the outer boundary of the Zone A for any tributary or associated surface water body located outside of the Zone A of a Class A surface water source, or within a lateral distance of between 100 and 200 feet for 400 feet upstream of a Class B Drinking Water Intake, unless:
  - a. A minimum of 24 months has elapsed since the last application to the site; and
  - b. Herbicides are applied selectively by low pressure, using foliar techniques or basal or cut-stump applications.

### (c) Private Wells

1. No herbicides shall be applied within 50 feet of an identified Private Well.

2. No herbicides shall be applied within a distance of between 50 feet and 100 feet of an identified Private Well, unless:

- a. A minimum of 24 months has elapsed since the last application to the site; and
- b. Herbicides are applied selectively by low pressure, using foliar techniques or basal or cut-stump applications.

(3) State-listed Species Habitat

(a) Any person proposing to apply an herbicide within any State-listed Species Habitat who does not have a current Yearly Operational Plan approved in writing by the Division of Fisheries and Wildlife pursuant to 321 CMR 10.14(12), shall submit all necessary materials required for review pursuant to 321 CMR 10.18.

(b) The management of vegetation within existing utility rights-of-way shall be exempt from the requirements of 321 CMR 10.18 through 10.23, provided that the management is carried out in accordance with a Yearly Operational Plan approved in writing by the Division of Fisheries and Wildlife, pursuant to 321 CMR 10.14(12).

(c) No person shall apply an herbicide within State-listed Species Habitat unless the application is approved by the Division of Fisheries and Wildlife pursuant to 333 CMR 11.04 (3a and 3b), and such approval is submitted to the Department.

(4) Wetlands, Waters Over Wetlands, Riverfront Areas, and Certified Vernal Pools

(a) No herbicide shall be applied on or within 10 feet of a Wetland or Water Over a Wetland, within 10 feet of the mean annual high-water line of any River, or within 10 feet of any Certified Vernal Pool.

(b) No herbicide shall be applied on or within a distance of between 10 feet and 100 feet of any Wetland or Water Over a Wetland, within a distance of 10 feet from the mean annual high-water line of any River and the outer boundary of any Riverfront Area, or within a distance of 10 feet from any Certified Vernal Pool and the outer boundary of any Certified Vernal Pool Habitat unless:

1. A minimum of 12 months has elapsed since the last application to the site; and
2. Herbicides are applied selectively by low pressure, using foliar techniques or basal or cut-stump applications.

(c) Notwithstanding 333 CMR 11.04(4) (a) –(b), public utilities providing electric, gas, water, telephone, telegraph and other telecommunication services (and other applicants, if consistent with all relevant provisions of the Massachusetts Wetlands Protection Act and its regulations in effect at the time of application) may apply herbicides on or within 10 feet of a Wetland in accordance with the following conditions:

1. Submission of a study, the design of which is subject to prior approval by the Departments of Agricultural Resources and Environmental Protection, evaluating impacts of the proposed vegetation management

program utilizing herbicides on or within 10 feet of Wetlands, and comparing those impacts to those which would result if only non-chemical control methods were used in these areas. The study must detail vegetation management practices and use patterns specific to those used by the type of entity submitting the study; and

2. A finding by the Department, after consultation with the Rights-of-Way Advisory Panel, that the proposed vegetation management program utilizing herbicides on or within 10 feet of Wetlands will result in less impacts to the Wetlands than mechanical control.

3. Notwithstanding the above, no herbicides shall be applied on or within ten feet of any standing or flowing water in a Wetland.

#### (5) Inhabited and Agricultural Areas

No foliar herbicide shall be applied within 100 feet of any Inhabited Area or any Agricultural Area unless:

1. A minimum of 12 months has elapsed since the last application to the site; and
2. Herbicides are applied selectively by low pressure, using foliar techniques or basal or cut-stump applications.

#### 11.05: Vegetation Management Plan (VMP)

##### (1) General.

(a) Unless otherwise specified by the Department, all VMPs should be submitted by the applicant no later than September 1st prior to the calendar year of the proposed first year of maintenance. All approved VMPs shall be effective for a five year period unless otherwise modified, or revoked by the Department.

(b) The VMP shall be presented on forms and/or format approved by the Department.

##### (2) Requirements. The VMP shall include, but not be limited to, the following:

(a) General statement of goals and objectives of the VMP.

(b) Identification of target vegetation.

(c) Intended methods of vegetation management and rationale for use, including vegetation control techniques, equipment proposed for use, timing of applications and alternative control procedures.

(d) Discussion of justification for proposed herbicide applications, including a description of the alternative control methods considered and the reasons that they were rejected.

(e) Methods, references and sources for identifying sensitive areas and control strategies proposed for sensitive areas. Applicants should note that Department of Environmental Protection regulations at 310 CMR 10.03(6)(b) currently require Wetlands Determinations for applicants that are not eligible for a public utility exemption.

(f) Operational guidelines for applicators relative to herbicide use.

- (g) Identification and qualifications of individuals developing and submitting a plan.
- (h) A detailed description of the IPM Program, showing how it will minimize the amount and frequency of herbicide application.
- (i) Description of alternative land use provisions or agreements that may be established with individuals, state, federal or municipal agencies that would minimize the need for herbicides, including the rationale for accepting or denying any reasonable request made by any individual.
- (j) Description of a remedial plan to address spills and related accidents.
- (k) For state agencies and authorities as defined in M.G.L. c. 3, § 39, a description of the applicant's policy to eliminate or, if necessary, reduce the use of pesticides for any vegetation management purpose along roadways, and a demonstration that, for the proposed application, the costs of non-chemical vegetation control significantly outweigh the benefits.

### (3) Public Notice, Review and Comment.

- (a) Upon receipt of the proposed VMP, the Department shall schedule and hold appropriate regional public hearings affording all interested parties the opportunity to comment, both at the hearings and in writing to the Department, on the proposed plan.
- (b) At least 21 days prior to the public hearings, the Department shall publish notice of the hearings in the Environmental Monitor and regionally located newspapers, and send notice to municipalities covered by the plan and to the appropriate mailing list. The notice will include locations where copies of the VMP can be reviewed.
- (c) The public shall have no less than 45 days, starting from publication of the Environmental Monitor notice, to comment upon proposed VMPs, unless the Department extends the comment period for good cause.
- (d) Wherever a chief elected official, Board of Health or Conservation Commission in a municipality covered by the proposed VMP requests a copy of the proposed plan, the applicant shall, at least 21 days prior to the end of the public comment period, respond to this request. The response must either include a copy of the proposed VMP, or an Internet address where the VMP may be viewed and a note that a hard copy will be provided promptly upon further request.

### (4) Disposition of VMP.

- (a) 25 copies of the proposed VMP shall be submitted to the Department. The Department shall distribute copies of the proposed VMP to each member of the Rights-of-Way Advisory Panel. The Department may, at its sole discretion, allow electronic presentation of the VMP in lieu of some or all of the 25 copies that would otherwise be submitted pursuant to this subsection.
- (b) Within 30 days of the end of the public comment period unless extended for good cause, the Rights-of-Way Advisory Panel shall review the VMPs and recommend in writing to the Department

approval, denial or modification of each VMP; if necessary, the Advisory Panel may request additional information from the applicant.

(c) Within 21 days of the end of the Rights-of-Way Advisory Panel review period, unless extended by the Department for good cause, the Department will notify the applicant and the Advisory Panel in writing one of the following:

1. request for additional information or modification; or
2. denial of VMP; or
3. approval of VMP.

(d) The VMP may be modified, withdrawn or amended by the applicant through a written request sent by certified mail to the Department.

(e) Resubmission of a denied VMP, updating of a VMP, or a significant amendment to an approved VMP shall be processed according to 333 CMR 11.05.

(f) The applicant must send a copy of the approved VMP, or an Internet address where the VMP may be viewed and a note that a hard copy will be provided promptly upon further request, to the chief elected official, Board of Health, and Conservation Commission in each municipality covered by the plan.

(5) Time for Action. Non-action by the Department on a VMP within the time specified herein does not constitute approval of the submitted plan. In the event that the Department fails to notify the applicant of a decision within the time specified above and upon written request from the applicant, the Commissioner must issue a finding within ten days of receipt stating the reason for the delay and providing an estimated completion date.

#### 11.06: Yearly Operational Plan (YOP)

##### (1) General.

(a) The applicant is responsible for the accuracy and completeness of all information submitted with the YOP. The YOP shall be consistent with the objectives of the VMP and shall describe the intended operational program for that calendar year.

(b) The YOP shall be presented on forms and in a format approved by the Department.

##### (2) Requirements. The YOP shall include but not be limited to the following:

(a) Maps locating the rights-of-way and sensitive areas not readily identifiable in the field;

(b) Herbicides proposed including EPA Registration numbers, application rates, carriers and adjuvants;

(c) Herbicide application techniques and alternative control procedures proposed.

(d) The name, address and phone number of the company which will perform any herbicide treatment;

(e) Identification of target vegetation;

(f) The name, address and phone number of the individual representing the YOP applicant;

- (g) Description of methods used to flag or otherwise designate sensitive areas on the right-of-way;
- (h) Herbicide Fact Sheets as approved by the Department; and
- (i) Procedures and locations for handling, mixing and loading of herbicide concentrates.

(3) Public Notice, Review and Comment.

(a) Upon submittal of the YOP for approval, the Department will publish a notice in the Environmental Monitor. Said notice shall be provided by the applicant and shall include the information on the municipalities through which the rights-of-way pass, a brief description of the intended program, and the procedure for public review and comment.

The Department shall send notification of the publication to the applicant and the appropriate mailing list.

(b) Upon submittal of the YOP to the Department, the applicant shall provide by certified mail under separate cover to the Board of Health, Conservation Commission, chief elected municipal official, and where applicable, the Massachusetts Water Resources Authority and Massachusetts Department of Conservation and Recreation, a copy of the proposed YOP (or an Internet address where the proposed YOP may be viewed and a note that a hard copy will be provided promptly upon request) and the Environmental Monitor notice for the municipality or municipalities in which the herbicide treatment is proposed. Community water suppliers shall receive electronic information or a one page notification by mail which provides details about where to receive more information. The applicant shall maintain copies of the packet sent to municipalities and certified mail receipts. The applicant shall make copies of the packet, certified mail receipts, and any further correspondence regarding hard copies of YOPs in lieu of Internet viewing, available to the Department upon request.

(c) The Department shall allow a 45-day comment period on proposed YOPs, unless extended for good cause, commencing with the publication of the notice in the Environmental Monitor and receipt of the proposed YOP and Environmental Monitor notice by each municipality.

(d) The Department may approve, deny or modify YOPs after the 45-day comment period has expired.

(4) Disposition of YOP.

(a) The applicant shall submit the YOP to the Department at least 90 days prior to the proposed commencement of application to allow completion of the comment and review period.

(b) The Department shall review the YOP to ensure that the YOP is consistent with the approved VMP. Any inconsistencies or deficiencies will be noted by the Department and returned with the YOP to the applicant.

Page 16 of 18 **3/9/2007**

(c) Where practical, the Department shall approve or deny the YOP within 90 days of receipt. The Department will provide notice of the decision to the applicant, municipal agencies and commentators in writing.

(d) The approved YOP in conjunction with the VMP shall govern the application of herbicide for a period not to exceed 12 months in accordance with other laws and regulations of the State and Federal governments and impose such conditions as necessary to minimize the risk of adverse effects on human health and the environment.

(5) Time for Action. Non-action by the Department on a YOP within the time specified herein does not constitute approval of the submitted plan. In the event that the Department fails to notify the applicant of a decision within the time specified above and upon a written request from the applicant, the Commissioner must issue a finding within ten days of receipt stating the reason for the delay and providing an estimated completion date.

#### 11.07: Public Notification

(1) At least 21 days in advance of application of herbicide to a right-of-way in any city or town, the applicant shall notify the Department, the board of health and the local public water supplier and, by registered mail, the mayor, city manager or chairman of the board of selectman, and the conservation commission in the municipality where the right-of-way lies. The notice shall include the following information: the approximate dates on which such herbicide application shall commence and conclude, provided however, that said application shall not commence more than ten days before nor conclude more than ten days after said approximate dates; the method and locations of application; a Department-approved Herbicide Fact Sheet on the active ingredient(s) of the herbicide(s) used; the EPA registration number(s) for the herbicide(s) used; the name, title, business address and phone number of the certified commercial applicator or licensed applicator, or the contractor, employer or employees responsible for carrying out the application. Where specific information required for this notice is already contained in the current YOP that is on file with the local official, the applicant may incorporate the appropriate pages of the YOP by reference in its notice to that official, indicating that these pages are also directly available from the applicant upon request.

(2) This public notice may run concurrently with the public notice and comment period in 333 CMR 11.06(3), provided that the notice is distributed at least 21 days prior to the herbicide application, and that, prior to the herbicide application, the public notice and comment period has closed and the Department has granted YOP approval without modifications. When the Department's final approval requires modifications or application dates are selected after YOP approval, separate notice under 333 CMR 11.07(a) is required.

(3) At least 48 hours prior to the application referred to in 11.07(a), the applicant must publish a conspicuous notice in at least one newspaper of general circulation in the city or town where the right-of-way lies. The notice must appear in the local section of the newspaper and measure at least four by five

Page 17 of 18 **3/9/2007**

inches in size. The notice shall contain the following information: the method and locations of pesticide application; the approximate dates on which the pesticide application shall commence and conclude, provided that the applications shall not commence more than ten days before nor conclude ten days after said approximate dates; a list of potential pesticides to be used; a description of the purpose of the application; and the name, title, business address and phone number of a designated contact person representing the applicant from whom any citizen may request further information. The notice should apply only to the calendar year in which the notice is published. Upon request the notice must be made available to the Department.

#### 11.08: Notice of Modification and Revocation

(1) The Department may suspend approval of any VMP or YOP, by written notice to the applicant and applicator, halting the application of herbicide to that right-of-way of the above mentioned YOP. After 21 days if the applicant does not request a hearing, the Department may revoke or modify the VMP and YOP, if it finds:

- (a) that the terms, conditions of restrictions thereof, are being violated or are inadequate to avoid unreasonable adverse effects on the environment or on human health; or
- (b) that the applicant has made a false or misleading statement or has not provided information requested by the Department or Rights-of-Way Advisory Panel; or
- (c) that the applicant has violated any provision of the Massachusetts Pesticide Control Act or FIFRA, or any regulations, standards, orders or license issued under either.

(2) Upon notice of revocation or modification, the applicant may modify the YOP by written request to the Department. Applications to modify the YOP shall be submitted in the manner set forth in 333 CMR 11.06 and disposed of in the manner set forth in 333 CMR 11.06. The Department may waive all or part of the requirement if it determines that the proposed changes do not significantly change the terms of the approved YOP.

#### 11.09: Rights of Appeal

Any person aggrieved by the decision of the Department to approve, deny, modify or revoke a VMP or YOP may request an adjudicatory hearing. The request for a hearing must be received by the Department within 21 calendar days after receipt of the decision. The request should state clearly and concisely the facts of the proceeding, the reasons the decision is alleged to be inconsistent with 333 CMR 11.00 and the relief sought by the adjudicatory hearing. The adjudicatory hearing before the Pesticide Board shall be conducted in accordance with the informal rules of adjudicatory proceeding as set forth in the regulations promulgated pursuant to M.G.L. c. 30A.

#### 11.10: Penalties

Page 18 of 18 3/9/2007

Any person who violates any provision of 333 CMR 11.00 shall be subject to the criminal and civil penalties set forth in M.G.L. c. 132 B, § 14.

#### 11.11: Rights-of-Way Advisory Panel

(1) A Rights-of-Way Advisory Panel shall be established to advise the Department on issues relating to 333 CMR 11.00 and to fulfill specific functions as detailed within 333 CMR 11.00.

(2) The Department shall request that the following members participate on the Rights-of-Way Advisory Panel: the Commissioners/Secretaries or his/her designee of the Department of Environmental Protection, the Department of Public Health, and the Executive Office of Transportation and Construction; and a representative of each of the following, all to be appointed by the Department Commissioner: the Massachusetts Association of Conservation Commissions, the Massachusetts Association of Health Boards, the Massachusetts Department of Conservation and Recreation, and an Environmental Advocacy Organization Representative, a member of the University of Massachusetts Extension who is well versed in weed science and Integrated Pest Management of weeds, a representative of the Massachusetts Railroad Association, a representative of a utility company, and a commercial pesticide applicator.

(3) Non-agency representatives shall remain on the panel for a term of five years. Any member absent from two or more consecutive meetings may be removed from the Advisory Panel at the discretion of the Commissioner of the Department, and a replacement requested from the representative agency, industry group, or association.

(4) The Advisory Panel shall meet at least once each year, and shall hold further meetings upon the request of the Department of Agricultural Resources or at the request of any two members of the Advisory Panel.

(5) All Advisory Panel members shall serve without compensation.

## **Appendix 2**

### **List of Municipalities through which National Grid Manages Rights-of-Way**



Abington	Groton	Orange	Westford
Adams	Groveland	Oxford	Westminster
Amesbury	Halifax	Palmer	West Newbury
Andover	Hampden	Paxton	Westport
Ashburnham	Hancock	Peabody	West Stockbridge
Athol	Hanson	Pelham	Weymouth
Attleboro	Hanover	Pembroke	Wilbraham
Auburn	Hardwick	Pepperell	Williamstown
Avon	Harvard	Petersham	Wilmington
Ayer	Haverhill	Phillipston	Winchendon
Barre	Heath	Plainville	Winthrop
Belchertown	Hingham	Princeton	Whitman
Bellingham	Holbrook	Randolph	Worcester
Berlin	Holden	Reading	Wrentham
Bernardston	Hopedale	Rehoboth	
Beverly	Hubbardston	Revere	
Billerica	Hull	Richmond	
Blackstone	Lancaster	Rockland	
Boxford	Lanesborough	Rockport	
Boylston	Lawrence	Rowe	
Bridgewater	Lee	Rowley	
Brimfield	Leicester	Royalston	
Brockton	Lenox	Rutland	
Brookfield	Leominster	Salem	
Buckland	Leverett	Salisbury	
Charlemont	Leyden	Saugus	
Charlton	Littleton	Scituate	
Chelmsford	Lowell	Seekonk	
Cheshire	Ludlow	Sheffield	
Clarksburg	Lunenburg	Shelburne	
Clinton	Lynn	Shirley	
Cohasset	Lynnfield	Shrewsbury	
Colrain	Malden	Shutesbury	
Conway	Mansfield	Somerset	
Danvers	Marlborough	Southborough	
Deerfield	Medford	Southbridge	
Dighton	Medway	Spencer	
Douglas	Melrose	Sterling	
Dracut	Mendon	Stockbridge	
Dudley	Merrimac	Stoughton	
Dunstable	Methuen	Sturbridge	
East Bridgewater	Middleton	Sunderland	
East Brookfield	Milford	Sutton	
Easthampton	Millbury	Swampscott	
East Longmeadow	Millville	Swansea	
Easton	Monroe	Templeton	
Egremont	Monson	Tewksbury	
Erving	Montague	Topsfield	
Everett	Newbury	Tyngsborough	
Fall River	Newburyport	Upton	
Fitchburg	New Salem	Uxbridge	
Florida	North Adams	Wakefield	
Foxborough	Northampton	Ware	
Franklin	North Andover	Warren	
Gardner	North Attleborough	Warwick	
Georgetown	Northborough	Webster	
Gill	Northbridge	Wendell	
Gloucester	North Brookfield	Wenham	
Grafton	North Reading	Westborough	
Granby	Norton	West Boylston	
Great Barrington	Norwell	West Bridgewater	
Greenfield	Oakham	West Brookfield	



**Appendix 3**  
**Chapter 132B**



## **Statutes - Pesticides**

### **MGL 132B Massachusetts Pesticide Control Act**

#### **Chapter 132B: Section 1. Title; purpose.**

##### **Section 1. This chapter shall be known and may be cited as the Massachusetts Pesticide Control Act.**

The purpose of this chapter is to conform the laws of the commonwealth to the Federal Insecticide, Fungicide, and Rodenticide Act, Public Law 92-516, as amended, and the regulations promulgated thereunder and to establish a regulatory process in the commonwealth. The exclusive authority in regulating the labeling, distribution, sale, storage, transportation, use and application, and disposal of pesticides in the commonwealth shall be determined by this chapter.

#### **Chapter 132B: Section 2. Definitions.**

Section 2. Unless the context clearly requires otherwise, when used in this chapter, the following words and phrases shall have the following meanings:<sup>a</sup>

"Active ingredient", in the case of a pesticide other than a plant regulator, defoliant, or desiccant, an ingredient which prevents, destroys, repels, or mitigates any pest; in the case of a plant regulator, an ingredient which through physiological action accelerates or retards the rate of growth or rate of maturation or otherwise alters the behavior of ornamental or crop plants or the products thereof; in the case of a defoliant, an ingredient which causes the leaves or foliage to drop from a plant; and, in the case of a desiccant, an ingredient which artificially accelerates the drying of plant tissue.

"Administrator", the Administrator of the United States Environmental Protection Agency.

"Adulterated", when used with reference to a pesticide, any pesticide the strength or purity of which falls below the professed standard of purity as expressed on its labeling under which it is sold; a pesticide for which any substance has been substituted wholly or in part; or a pesticide from which any valuable constituent has been wholly or in part abstracted.

"Advisory council", a council established by regulations adopted by the department for the purposes set forth in section five.

"Agricultural commodity", a plant, or part thereof, or animal or animal product produced by a person primarily for sale, consumption, propagation, or other use by man or animals.

"Animal", all vertebrate and invertebrate species, including but not limited to man and other mammals, birds, fish and shellfish.

"Certified applicator", an individual who is certified under the provisions of section ten as authorized to use or supervise the use of any pesticide which is classified by the department as being for restricted use.

"Private applicator", a certified applicator who uses or supervises the use of any pesticide which is classified by the department as being for restricted use for purposes of producing any agricultural commodity on property owned or rented by him or his employer or if applied without compensation other than trading of personal services between producers of agricultural commodities on the land of another person.

"Commercial applicator", a certified applicator, whether or not he is a private applicator with respect to some users, who uses or supervises the use of any pesticide which is classified by the department as being for restricted use for any purpose or on any land other than as provided in the preceding paragraph.

"Licensed applicator", an individual who is licensed under the provisions of section ten as authorized to be

present while pesticides classified by the department as being for restricted use are being applied under the direct supervision of a certified applicator, or to use or to be present to supervise the use or land of another for hire any pesticide classified by the department as being for general use.

"Beneficial insects", insects which, during their life cycle, are effective pollinators of plants, are parasites or predators of pests, or are otherwise beneficial.

"Board", the pesticide board, established by section three.

"Commissioner", the commissioner of food and agriculture.

"Defoliant", a substance or mixture of substances intended to cause the leaves or foliage to drop from a plant, with or without causing abscission.

"Department", the department of food and agriculture.

"Desiccant", a substance or mixture of substances intended to artificially accelerate the drying of plant tissue.

"Device", an instrument or contrivance, other than a firearm, intended to hold or dispense a pesticide and used in conjunction with a pesticide, the purpose of which is to trap, destroy, repel, or mitigate any pest or any other form of plant or animal life, other than man and other than bacteria, virus, or other micro-organism on or in living man or other living animals, but not including equipment used for the application of pesticides when sold separately therefrom.

"Director", the pesticides program director established by section four.

"Distribution" or "Distribute", to offer for sale, hold for sale, sell, barter, ship, deliver for shipment, or receive.

"Environment", includes water, air, land, and all plants and man and other living animals therein, and the interrelationships which exist among these.

"Federally registered pesticide", a pesticide which is registered pursuant to FIFRA.

"FIFRA", the Federal Insecticide, Fungicide, and Rodenticide Act, Public Law 92-516, as amended.

"Fungi" or "Fungus", non-chlorophyll-bearing thallophytes of a lower order than mosses and liver-worts, as, for example, rusts, smuts, mildews, molds, yeasts, and bacteria, except those on or in living man or other living animals, and except those in or on processed food, beverages, or pharmaceuticals.

"Imminent hazard", a situation in which the continued use of a pesticide would result in unreasonable adverse effects on the environment.

"Inert ingredient", an ingredient which is not active.

"Insect", a small invertebrate animal generally having the body more or less obviously segmented, for the most part belonging to the class insecta, comprising six-legged, usually winged forms, as for example, moths, beetles, bugs, bees, flies, and their immature stages, and to other allied classes of arthropods whose members are wingless and usually have more than six legs, as for example, spiders, mites, ticks, millipedes, and wood lice.

"Label", the written, printed, or graphic matter, on or attached to, the pesticide or device or any of its containers or wrappers.

"Labeling", all labels and all other written, printed or graphic matter accompanying the pesticide or device

at any time, or to which reference is made on the label or in literature accompanying the pesticide or device, but shall not include publications of the United States Environmental Protection Agency, the United States Department of Agriculture, or Interior, or Health, Education and Welfare, state experiment stations, state agricultural colleges, and other similar federal or state institutions or agencies authorized by law to conduct research or disseminate information in the field of pesticides, except as otherwise provided by regulation of the department.

"Land", land and water areas, including airspace, and structures, buildings, contrivances, and machinery appurtenant thereto or situated thereon, fixed or mobile.

"Licensed pesticide dealer", a person who distributes pesticides classified by the department as being for restricted use or pesticides whose uses or distribution are further restricted by regulations adopted by the department, with the approval of the board.

"Misbranded", (a) in the case of a pesticide or device, if the labeling bears any statement, design, or graphic representation relative thereto or to its ingredients which is false or misleading in any particular;

(b) in the case of a pesticide or device, if it is an imitation of, or is offered for sale under the name of, another pesticide or device;

(c) in the case of a pesticide or device, if any word, statement, or other information required by or under authority of FIFRA or this chapter to appear on the label or labeling is not prominently placed thereon with such conspicuousness, as compared with other words, statements, designs, or graphic matter in the labeling, and in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use;

(d) in the case of a pesticide, if it is contained in a package or other container or wrapping which does not conform to standards established pursuant to FIFRA or this chapter;

e) in the case of a pesticide, if it does not contain a label bearing the registration number assigned under FIFRA to each establishment in which it was produced;

(f) in the case of a pesticide, if the labeling accompanying it does not contain directions for use which are necessary for effecting the purpose for which the product is intended and if complied with, together with any requirements imposed under FIFRA or this chapter, is adequate to protect health and the environment;

(g) in the case of a pesticide, if its label does not contain a warning or caution statement which may be necessary and if complied with, together with any requirements imposed under FIFRA or this chapter, is adequate to protect health and the environment;

(h) in the case of a pesticide, if its label does not bear an ingredient statement on that part of the immediate container, and on the outside container or wrapper of the retail package, if there be one, through which the ingredient statement on the immediate container cannot be clearly read, which is presented or displayed under customary conditions of purchase, except that a pesticide is not misbranded if the administrator has permitted the ingredient statement to be placed on another part of the container pursuant to FIFRA;

(i) in the case of a pesticide, if its labeling does not contain a statement of the use classification under which it is registered;

(j) in the case of a pesticide, if there is not affixed to its container, and to the outside container or wrapper of the retail package, if there be one, through which the required information on the immediate container cannot be clearly read, a label bearing the name and address of the producer, registrant, or person for

whom the pesticide is produced; the name, brand, or trademark under which the pesticide is distributed; the net weight or measure of the content, as required by the administrator; and the registration number assigned to the pesticide by said administrator pursuant to FIFRA;

(k) in the case of a pesticide containing any substance or substances in quantities highly toxic to man, unless the label shall bear, in addition to any other matter required by FIFRA or this chapter the skull and crossbones; the word "POISON" prominently in red on a background of distinctly contrasting color; and a statement of practical treatment, first aid or otherwise, in case of poisoning by the pesticide; and (%93) in the case of a pesticide, if its container does not bear a label, as required by the department pursuant to this chapter.

"Nematode", invertebrate animals of the phylum nemathelminthes and class nematoda, that is, unsegmented round worms with elongated, fusiform, or sac-like bodies covered with cuticle, and inhabiting soil, water, plants or plant parts. Nematodes may also be referred to as nemas or eel-worms.

"Person", an individual, association, partnership, corporation, company, business organization, trust, estate, the commonwealth or its political subdivisions, administrative agencies, public or quasi-public corporation or body, or any other legal entity or its legal representative, agent or assign, or a group of persons.

"Pest", an insect, rodent, nematode, fungus, weed, or any other form of terrestrial or aquatic plant or animal life or virus, bacterium, or other micro-organism, except viruses, bacteria or other micro-organisms on or in living man or other living animal, which is declared to be a pest by the administrator or by the department with the approval of the board.

"Pesticide", a substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant; provided that the term "Pesticide" shall not include any article that is a "new animal drug" within the meaning of section 201 (w) of the Federal Food, Drug and Cosmetic Act (21 U.S.C. s 321 (w)), or that has been determined by the Secretary of the United States Department of Health, Education and Welfare not to be a new animal drug by a regulation establishing conditions of use for the article, or that is an animal feed within the meaning of section 201 (x) of such act (21 U.S.C. s 321 (x)).

"Plant regulator", a substance or mixture of substances intended, through physiological action, to accelerate or retard the rate of growth or rate of maturation, or to otherwise alter the behavior of plants or the produce thereof, but shall not include substances to the extent that they are intended as plant nutrients, trace elements, nutritional chemicals, plant inoculants, and soil amendments. Also, the term "plant regulator" shall not include any nutrient mixtures or soil amendments commonly known as vitamin-hormone horticultural products, intended for improvement, maintenance, survival, health, and propagation of plants, and as are not for pest destruction and are nontoxic, nonpoisonous in the undiluted package concentration.

"Produce", to manufacture, prepare, compound, propagate, process or repackage any pesticide or device.

"Producer", a person who manufactures, prepares, compounds, propagates, processes or repackages any pesticide or device.

"Protect health and the environment" or "protection of health and environment", protection against any unreasonable adverse effects on the environment.

"Registrant", a person who has registered any pesticide pursuant to the provisions of this chapter.

"Under the direct supervision of a certified applicator", unless otherwise prescribed by its labeling, a pesticide shall be considered to be applied under the direct supervision of a certified applicator if it is

applied by a competent person acting under the instructions and control of a certified applicator who is available if and when needed, and who is responsible for the pesticide applications made by that person, even though such certified applicator is not physically present at the time and place the pesticide is applied.

"Unreasonable adverse effects on the environment", an unreasonable risk to man or the environment, taking into account the economic, social and environmental cost and benefits of the use of any pesticide.

"Weed", a plant which grows where not wanted.

"Wildlife", vertebrate animals, excluding man, that are wild by nature, including fish, birds, mammals, reptiles and amphibians.

#### **Chapter 132B: Section 3. Pesticide board.**

Section 3. There shall be within the department of food and agriculture a pesticide board which shall consist of the commissioner of environmental protection or his designee, the commissioner of food and agriculture or his designee, the director of the division of food and drugs or his designee, the commissioner of fisheries, wildlife and recreational vehicles or his designee, the commissioner of environmental management or his designee, the commissioner of public health or his designee, and seven persons appointed by the governor one of whom shall have been engaged in the commercial production of a plant-related agricultural commodity for at least the preceding five years on land owned or rented by him, one of whom shall have been an active commercial applicator of pesticides for at least the preceding five years, one of whom shall have expertise in the health effects of pesticide use, one of whom shall be a physician, one of whom shall be experienced in the conservation and protection of the environment, and two of whom shall represent the public at large. The commissioner of food and agriculture or his designee shall be chairman of the board.

The appointive members of the board shall receive fifty dollars for each day or portion thereof spent in the discharge of their official duties and shall be reimbursed for their necessary expenses incurred in the discharge of their official duties. Each appointive member shall be appointed for a term of four years, except for persons appointed to fill vacancies who shall serve for the unexpired term. Any member shall be eligible for reappointment.

The board shall hold an annual meeting in March, and regularly at three other times annually, and from time to time at the call of the chairman or upon the request of any two members.

Seven members of the board shall constitute a quorum. The board may, by vote of a majority of its members then in office, adopt rules and regulations for the conduct of its business. Rules and regulations adopted may be amended or repealed by a two-thirds vote of its members.

The board in addition to other powers conferred in this chapter shall advise the commissioner of food and agriculture with respect to the implementation and administration of this chapter.

The pesticides program director established by section four shall attend meetings of the board, shall serve as secretary thereto, but shall have no vote in its deliberation.

#### **Chapter 132B: Section 3A. Pesticide board subcommittee.**

Section 3A. A subcommittee of the pesticide board shall be established and shall be charged with the responsibility of registering all pesticides for use in the commonwealth pursuant to section seven. Said subcommittee shall also be responsible for issuing all experimental use permits pursuant to section eight. Said subcommittee shall consist of five members, the director of the division of food and drugs, who shall act as chairman, the commissioner of the department of food and agriculture or his designee, the commissioner of the department of environmental management or his designee, the commissioner of public health or his designee, and one person appointed by the governor, who shall have been actively engaged in commercial application of pesticides for at least the preceding five years who shall be a

member of the pesticide board. Any person aggrieved by the decision of said subcommittee may appeal any such decision according to the provisions of section thirteen.

**Chapter 132B: Section 4. Programs director.**

Section 4. The pesticide regulatory functions conferred upon the department under the provisions of this chapter shall be under the administrative supervision of a pesticide programs director who shall be qualified by training and experience to perform such duties. Said director shall be appointed by the commissioner with the approval of the board for a term of five years. Said person shall be eligible for reappointment, but may be removed by the commissioner for cause. The position of director shall not be subject to the provisions of chapter thirty-one or the provisions of section nine A of chapter thirty. If an employee serving in a position which is classified under chapter thirty-one or in which he has tenure by reason of section nine A of chapter thirty shall be appointed director, he shall upon termination of his service as director be restored to the position which he held immediately prior to such appointment or to a position equivalent thereto in salary grade in the same state department; provided, however, that his service in such unclassified position shall be determined by the civil service commission in administering chapter thirty-one. Such restoration shall be made without impairment of his civil service status or tenure under section nine A of chapter thirty and without loss of seniority, retirement, or other rights to which uninterrupted service in such prior position would have entitled him. During the period of such appointment, the person so appointed from a position in the classified service shall be eligible to take any competitive promotional examination for which he would otherwise have been eligible.

**Chapter 132B: Section 5. Powers and duties of department.**

Section 5. The department with the approval of the board may cooperate and enter into cooperative agreements and contracts with appropriate federal agencies, the agencies of other states, interstate agencies, other agencies of the commonwealth or its political subdivisions, or private or nonprofit organizations in matters related to the purposes of this chapter or FIFRA, and may receive from and dispense to such agencies such funds as may be available for the purposes of this chapter and FIFRA.

The department with the approval of the board shall take all action necessary or appropriate to secure for the commonwealth the benefits of FIFRA and other pertinent federal legislation.

The department with the approval of the board and subject to the provisions of chapter thirty A may from time to time adopt, amend or repeal such forms, regulations and standards as it deems necessary for the implementation and administration of this chapter.

The department with the approval of the board shall by regulation establish and formulate procedures whereby the advice or relevant advisory councils shall be sought incident to the development of policy or the adoption, amendment or repeal of regulations related to the administration of this chapter.

The department may with the approval of the board declare such pests and devices as it deems necessary to be subject to the provisions of this chapter.

**Chapter 132B: Section 6. Prohibited distributions, etc.**

Section 6. No person shall distribute a pesticide not registered pursuant to the provisions of section seven. This prohibition shall not apply to the transfer of a pesticide from one plant or warehouse to another plant or warehouse and used solely at such plant or warehouse as a constituent part to make a pesticide which is or will be registered pursuant to the provisions of this act; or the distribution of a pesticide pursuant to the provisions of an experimental use permit issued under section eight.

No person shall distribute a pesticide classified by the department as being for restricted use to a person not appropriately certified to use that pesticide. This prohibition shall not apply to the distribution of a pesticide to a competent individual acting under the direct supervision of an individual appropriately certified to use that pesticide.

No person shall distribute a pesticide that is adulterated or misbranded or a device that is misbranded.

No person shall distribute any pesticide unless it is in the registrant's or the producer's unbroken, unopened, and sealed container. This prohibition shall not apply to the repackaging of pesticides because of damage in transit.

No person shall distribute any pesticide that does not conform to any requirement of its registration or permit.

No person shall distribute any pesticide in containers that are unsafe due to damage or design.

No person shall detach, alter, deface, or destroy, wholly or in part, any label or labeling provided for in this chapter or in regulations adopted thereunder, or to add any substance to, or take any substance from, a pesticide in a manner that may defeat the purposes of this chapter or regulations adopted thereunder.

No person shall distribute, handle, dispose of, discard, or store any pesticide or pesticide container in such a manner as to cause injury to humans, vegetation, crops, livestock, wildlife, beneficial insects, to cause damage to the environment, or to pollute or contaminate any water supply, waterway, groundwater or waterbody.

No person shall act in the capacity of, or advertise as, or assume to act as a licensed pesticide dealer unless that person is in possession of a currently valid license issued by the department pursuant to the provisions of section nine. No person possessing a pesticide dealer license shall violate or allow to be violated any term, condition, restriction or provision of said license.

No person shall purchase or use a pesticide that is not registered by the department under the provisions of section seven; provided, however, that this prohibition shall not apply to the use of a pesticide consistent with the terms of an experimental use permit issued by the department under the provisions of section eight.

**Chapter 132B: Section 6A. Prohibited activities.**

Section 6A. No person shall use a registered pesticide in a manner that is inconsistent with its labeling or other restrictions imposed by the department. No person shall use a pesticide which is the subject of an experimental use permit inconsistently with the terms and conditions of said permit.

No individual certified or licensed as a pesticide applicator shall violate any provision, condition, term or restriction of his certification or license.

No person shall use a pesticide that has been classified by the department as being for restricted use unless he is an appropriately certified private applicator, an appropriately certified commercial applicator, or a competent individual acting under the direct supervision of an appropriately certified applicator.

**Chapter 132B: Section 6B. Herbicides; application by utilities; notice.**

Section 6B. No gas, electric, telephone or other utility company licensed to do business in the commonwealth shall spray, release, deposit, or apply any herbicide to any land which it owns or as to which it holds an easement or similar right and over which it maintains power, high tension or other lines without first notifying, by registered mail, the mayor, city manager or chairman of the board of selectmen and the conservation commission in the city or town where such land lies twenty-one days prior to such spraying.

The notice shall contain the following information: the approximate dates on which such spraying shall commence and conclude; provided, however, that said spraying shall not commence more than ten days prior nor conclude more than ten days after said approximate dates; the type of herbicide to be used and a copy of all information supplied by the manufacturers thereof to the utility relative thereto; the name and address of the contractor who will make the application for the utility or the name, title and business

address of the employee who will be responsible for carrying out the application if it is to be made by utility company employees.

#### **Chapter 132B: Section 7. Registration.**

Section 7. Pesticides, including pesticides that are federally registered may be registered by the subcommittee of the pesticide board for use in the commonwealth.

Each applicant for the registration of a pesticide shall annually file with the subcommittee an application providing thereon such information as said subcommittee shall require. Said subcommittee may require of applicants for pesticide registrations any information that it deems necessary to determine whether, or how, the pesticide should be registered.

An applicant desiring to register or reregister a pesticide shall pay such registration fee, not to exceed twenty-five dollars, as said subcommittee may by regulation require. All pesticide registrations shall be for a period not to exceed one year.

In the event that any person files with said subcommittee an application to reregister a pesticide which is registered on the date of application for reregistration and pays the appropriate fee therewith, such registration shall be deemed to be in effect until the earlier of the following two events shall occur, ninety days have elapsed after the registration was scheduled to expire, or the subcommittee notifies the applicant for reregistration that the registration has been renewed, modified or denied.

If said subcommittee determines that a pesticide, when used in accordance with its directions for use, warnings and cautions and for the uses for which it is registered, or for one or more such uses, or in accordance with a widespread and commonly recognized practice, will not generally cause unreasonable adverse effects on the environment, it may classify the pesticide, or the particular use or uses of the pesticide to which the determination applies, as being for general use.

If said subcommittee determines that a pesticide, when used in accordance with its directions for use, warnings and cautions and for the use for which it is registered, or for one or more of such uses, or in accordance with a widespread and commonly recognized practice, may cause, without additional restrictions, unreasonable adverse effects on the environment, including injury to the applicator, it may classify the pesticide or the particular use or uses to which the determination applies, for restricted use.

Said subcommittee shall register a pesticide if it determines that its composition is such as to warrant the proposed claims for it; its labeling and other material required to be submitted comply with the requirements of this chapter; it will perform its intended function without unreasonable adverse effects on the environment; and when used in accordance with widespread and commonly recognized practice it will not generally cause unreasonable adverse effects on the environment.

As part of the registration of a pesticide, said subcommittee may require that the pesticide be colored or discolored if such requirement is necessary for the protection of health or the environment, may classify for restricted use any pesticide or pesticide use classified for general use under FIFRA, and may include in the registration such conditions of use as it deems necessary.

If at any time it appears that a pesticide registration does not comply with the provisions of FIFRA, this chapter, or rules and regulations promulgated thereunder, or when used as registered, or a pesticide may cause unreasonable adverse effects on the environment, or a registered pesticide is an imminent hazard, the subcommittee as established in section three A, may, forthwith by an order suspend the registration of such pesticide. Notification of such order shall be sent to the applicant and shall be a public record.

#### **Chapter 132B: Section 8. Experimental use permits.**

Section 8. Any person may apply to the subcommittee for an experimental use permit for a pesticide. Each applicant for an experimental use permit shall file with the department an application providing thereon such information as the department may require. Each applicant for an

experimental use permit shall pay such registration fee, not to exceed twenty-five dollars, as the department may by regulation require.

The subcommittee may grant an experimental use permit to an applicant therefor if it determines that the applicant needs such a permit to accumulate information necessary to register a pesticide.

The subcommittee shall refuse to grant an experimental use permit if it believes that the pesticide applications to be made under the proposed terms and conditions may cause unreasonable adverse effects on the environment, or if it believes that the applicant or person to conduct the experimentation is not competent to conduct such experimentation without causing unreasonable adverse effects on the environment.

The subcommittee shall revoke any experimental use permit, at any time, if it believes that its terms or conditions are being violated, or that its terms and conditions are inadequate to avoid unreasonable effects on the environment.

#### **Chapter 132B: Section 9. Dealers' licenses.**

Section 9. A person may apply to the department to be a licensed pesticide dealer. Said applicants shall submit to the department a statement supplying such information thereon as the department may require. An applicant for such a license shall pay such registration fee, not to exceed twenty-five dollars, as the department may by regulation require, for each principal distribution center, branch outlet, or direct sales representative of an out-of-state distributor.

In the event that any person files with the department an application to renew a pesticide dealer's license which is in effect on the date of application for renewal and pays the appropriate fee therewith, such license shall be deemed to be in effect until the earlier of the following two events shall occur: ninety days have elapsed after the license was scheduled to expire; or the department notifies the applicant for renewal that the license has been renewed, modified or denied.

The department shall grant a pesticide dealer's license for a term not to exceed one year. The department shall grant such licenses subject to such terms, conditions and restrictions as it deems necessary or appropriate.

The department shall refuse to grant a pesticide dealer's license if it finds that the proposed distributor or his agent has acted in a manner inconsistent with the purposes for requirements of this chapter or FIFRA.

The department shall revoke any pesticide dealer's license, at any time, if it finds that its terms, conditions or restrictions are being violated or are inadequate to avoid unreasonable adverse effects on the environment.

As part of its determination to refuse to grant, or to revoke, a pesticide dealer's license the department may specify a period, not to exceed two years, within which the applicant may not reapply for a pesticide dealer's license. In the event that the department has specified a period for nonapplication, the department may later, at its discretion, shorten or waive such period.

#### **Chapter 132B: Section 10. Certificates and licenses; issuance, suspension and revocation.**

Section 10. Certifications and licenses to use pesticides may be issued to individuals by the department in accordance with the provisions, standards and procedures contained in and established pursuant to this chapter. Each certification and license issued pursuant to this section shall be valid only for the individual to whom it is issued, may not be transferred, and shall not continue in force and effect after the death of the individual to whom it is issued. All certifications and licenses shall be for a period not to exceed one year, unless sooner revoked or suspended.

The department may authorize individuals to use pesticides in classifications as a certified commercial applicator, a certified private applicator, and a licensed applicator provided, however, that the department shall require that all persons who are applicators of pesticides in public and private places used for

human occupation and habitation, except residential properties with three or less dwelling units, shall be so licensed or certified with such special designation.

The department may establish such categories and subcategories as it deems necessary to restrict or condition the scope of pesticide use permitted within each classification. The department may establish such standards and criteria, take such action and impose such requirements as it deems necessary to determine or redetermine levels of competence and experience to qualify for each classification and each category and subcategory thereof.

Each applicant for a certification or license shall annually file with the department an application providing thereon such information as the department may require.

Each applicant desiring to be certified or licensed shall annually pay such application fee, not to exceed twenty dollars, as the department may by regulation require.

In the event that any individual files with the department an application to renew a certification or license which is in effect on the date of the application for renewal and pays the appropriate fee therewith, such certification or license shall be deemed to be in effect until the earlier of the following two events shall occur: ninety days have elapsed after the certification or license was scheduled to expire; or the department notifies the applicant that the certification or license has been renewed, modified or denied.

The department may issue a certification or license to an applicant therefor if it determines that the applicant satisfies the criteria established for that certification or license and the category or subcategory for which the certification or license is sought. The department may thus issue a certification or license subject to such terms, conditions, restrictions and requirements as it deems necessary. The department may require that an applicant for a certification or license has obtained and maintains in effect a contract of liability insurance conforming to regulations established by the department.

The department shall prior to issuing a certificate or license evaluate each applicant to determine his competence with respect to the use and handling of pesticides, or to the use and handling of the pesticides or class of pesticides covered or to be covered by said individual's certification or license. Said evaluation shall include such examinations as the department may require. Examinations may be taken only upon payment of a fee, not to exceed ten dollars for each examination given, as the department may require by regulation approved by the board.

The department may revoke, suspend, cancel or deny any certification or license, or any class thereof, at any time, if it believes: that the terms or conditions thereof are being violated or are inadequate to avoid unreasonable adverse effects on the environment, or that the holder of or applicant for the certification or license has violated any provision of this chapter or FIFRA or any regulation, standard, order, license, certification or permit issued thereunder or that the holder or applicant for said certification or license is not competent with respect to the use and handling of pesticides, or to the use and handling of the pesticides or class of pesticides covered by said individual's certification or license. Any person whose certification or license is suspended or revoked hereunder shall also be subject to such other punishment, penalties, sanctions or liabilities as may be provided by law. As part of its determination to refuse to grant, to revoke, or to suspend a certification or license the department may specify a period, not to exceed two years, within which the applicant may not reapply for a certification or license. In the event that the department has refused to issue or has revoked or suspended such a certification or license, and has specified a period for non-application, the department may later, at its discretion, shorten or waive such period.

The department may, at its discretion, appropriately license or certify any person possessing a valid certification or license, or equivalent rating, issued by the pesticide control agency of any other state or the federal government whose standards for the issuance of such rating are not less stringent than those of the department, provided that the pesticide control agency of that state extends similar privileges to persons so licensed or certified by the commonwealth. Any person so licensed or certified shall be subject to the annual fee requirements of this section.

**Chapter 132B: Section 11. Protection of health and environment; regulations.**

Section 11. The department shall by regulation establish such restrictions and prohibitions upon the disposal and storage of pesticides, packages and containers of pesticides, and materials used in the testing or application of pesticides as it deems necessary to protect health and the environment.

**Chapter 132B: Section 12. Departmental orders; hazards; adverse environmental effects; violations.**

Section 12. Whenever it appears to the department that there is an imminent hazard, or a potential threat of unreasonable adverse effect on the environment, or a violation or a potential violation of any provision of this chapter or of any license, certification, permit, order, registration or regulation issued or adopted thereunder, the department may issue to such persons as it deems necessary an order requiring the production of samples and records, or an order imposing restraints on or requiring such action, as it deems necessary. Issuance of an order under this section shall not preclude and shall not be deemed an election to forego any action to recover for damages to interests of the commonwealth or, under section fourteen of this act, for civil penalties or for criminal fines and penalties.

**Chapter 132B: Section 13. Adjudicatory hearings.**

Section 13. Any person aggrieved by a determination by the department to register or not to register a pesticide, to suspend a pesticide registration, to issue, not issue or revoke an experimental use permit, to issue, deny, revoke or suspend any certification or license, or to issue an order, made under the provisions of this chapter, may request an adjudicatory hearing before the board under the provisions of chapter thirty A. Said determination shall contain a notice of a right to request a hearing and may specify a time limit, not to exceed twenty-one days, within which said persons may request a hearing before the board under the provisions of said chapter thirty A. If no such request is timely made, the determination shall be deemed assented to. If a timely request is received, the board shall within a reasonable time hold a hearing and comply with the provisions of said chapter thirty A. In hearings so held the board shall designate a hearing officer to preside over the hearing, to assemble an official record thereof, and to render a tentative decision as provided in paragraph (7) of section eleven of said chapter thirty A. The board shall make the final decision on the basis of the official record and tentative decision so rendered.

If, in making a determination which under the provisions of the preceding paragraph may be the subject of an adjudicatory hearing, the department finds that an imminent hazard or an unreasonable adverse effect on the environment could result pending the conclusion of the adjudicatory hearing requested thereon, the department may order that the determination shall become provisionally effective and enforceable immediately upon issuance, and shall remain so notwithstanding and until the conclusion of any adjudicatory hearing procedures timely requested. In the event that the department has thus made a determination provisionally effective, it may later, at its discretion, shorten the duration of or waive such order.

As part of a final decision in an adjudicatory proceeding held under the provisions of this section, the board may specify a reasonable time period within which the matter may be barred from further proceedings before the department or the board. In the event that the board has so specified a time period, the board may later, at its discretion, shorten or waive such period.

A person aggrieved by a final adjudicatory determination of the board may obtain judicial review thereof pursuant to the provisions of chapter thirty A.

**Chapter 132B: Section 14. Violations; penalties; injunctions.**

Section 14. Any person who knowingly violates any provision of section six shall be punished by a fine of not more than twenty-five thousand dollars, or by imprisonment for not more than one year, or both such fine and imprisonment, for each such violation, or shall be subject to a civil penalty not to exceed twenty-five thousand dollars for each such violation, which may be assessed in an action brought on behalf of the commonwealth in any court of competent jurisdiction. Each day of violation shall constitute a separate offense.

Any person who violates any provision of section six A or six B or who violates any regulation adopted under the provisions of this chapter, (a) shall be punished by a fine of not more than one thousand dollars, or imprisonment for not more than six months, or both such fine and imprisonment, for the second and each subsequent offense knowingly committed, or (b), shall be subject to a civil penalty not to exceed ten thousand dollars for any offense, which may be assessed in an action brought on behalf of the commonwealth in any court of competent jurisdiction. Each day of violation shall constitute a separate offense.

Any person who violates any order issued under the provisions of this chapter, (a) shall be punished by a fine of not more than twenty-five thousand dollars or imprisonment for not more than two years, or both such fine and imprisonment, for each violation knowingly committed, or (b) shall be subject to a civil penalty not to exceed twenty-five thousand dollars for each violation, which may be assessed in an action brought on behalf of the commonwealth in any court of competent jurisdiction. Each day of violation shall constitute a separate offense.

The superior court shall have jurisdiction to enjoin violations of, or grant such relief as it deems necessary or appropriate to secure compliance with, any provision of this chapter or the terms of an order, license, certification, registration, permit or regulation issued or adopted thereunder.

**Chapter 132B: Section 15. Departmental personnel, agents and inspectors; powers; evidence; confidential information.**

Section 15. For the purpose of administering the provisions of this chapter, personnel or agents of the department and its inspectors shall have access and entry at reasonable times to any premises pursuant to a search warrant duly issued by a court of competent jurisdiction, provided that no sample of a pesticide obtained in the course of such inspection and no result of any analysis or test of any such sample shall be received in evidence in any criminal proceeding under this chapter unless the sample shall have been taken and the analysis or test conducted by a chemist in the agricultural extension service of the University of Massachusetts authorized by the department. Personnel or agents of the department may take such samples as are reasonably necessary to accomplish the purpose of their investigation and inspection. Any information relating to secret processes, methods of manufacture, production or use obtained in the course of such inspection shall be kept confidential upon request, when not required to be disclosed incident to the enforcement of this chapter. This section shall not be construed to abrogate any of the powers and duties, as defined by general or special law or common law, of any agency or political subdivision of the commonwealth.

**Appendix 4**

**Chapter 85, Section 10**



## CHAPTER 85 OF THE ACTS OF 2000

### SECTION 10.

Said chapter 132B is hereby further amended by striking out section 6B, as appearing in the 1998 Official Edition, and inserting in place thereof the following section:

#### Section 6B.

- a. No gas, electric, telephone or other utility company licensed to do business in the commonwealth, nor any agency of the commonwealth or any of its political subdivisions, nor any authority, as defined in section 39 of chapter 3, nor any private entity or their agent, shall spray, release, deposit or apply any pesticide to any land which it owns, or as to which it holds an easement or similar right and over which it maintains power, high tension or other lines, or to any roadway, railway, or other transportation layout, without first notifying the department and, by registered mail, the mayor, city manager or chair of the board of selectmen and the conservation commission in the city or town where such application is to occur 21 days before such spraying, release, deposit or application, and without first publishing conspicuous notice in at least one newspaper of general circulation in each city or town where such land lies at least 48 hours prior to such spraying, release, deposit or application. Such notice shall appear in the local section of the newspaper and measure at least four by five inches in size. The published notice shall include: the method and locations of pesticide spraying, release, deposit or application; the approximate dates on which spraying, release, deposit or application shall commence and conclude, but such spraying, release, deposit or application shall not commence more than ten days before nor conclude more than ten days after such approximate dates; a list of potential pesticides to be used; a description of the purpose of the spraying, release, deposit or application; and the name, title, business address and phone number of a designated contact person from whom any citizen may request further information.
- b. The notice to the city or town where the affected land lies shall contain the following information: the method and locations of pesticide spraying, release, deposit or application; the approximate dates on which such spraying, release, deposit or application shall commence and conclude, but such spraying, release, deposit or application shall not commence more than ten days before nor conclude more than ten days after such approximate dates; the type of pesticide to be used and a copy of all information supplied by the manufacturers thereof relative to the pesticide; a department-approved fact sheet and United States Environmental Protection Agency registration number for each pesticide; the name, title, business address and phone number of the certified commercial applicator, certified private applicator or licensed applicator, or the contractor, employers or employees responsible for carrying out the pesticide spraying, release, deposit or application.
- c. Notwithstanding any other provision of law, all agencies of the commonwealth and all authorities, as defined in section 39 of chapter 3, shall develop policies to eliminate or, if necessary, reduce the use of pesticides for any vegetation management purpose along any roadway.
- d. Any employee of any state agency, or authority, as defined in section 39 of chapter 3, when spraying, releasing, depositing or applying pesticides, supervising the use of pesticides, or when present during the spraying, release, deposit or application of pesticides, shall be provided with personal protection equipment and clothing in conformance with all federal and state laws and regulations pertaining to pesticide applications. This shall include, but not necessarily be limited to, protections according to Material Safety Data Sheets (MSDS), the product label, and any other supportive technical data provided by the manufacturer.



## **Appendix 5**

### **Department of Food and Agriculture Wetland Decision**





COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
DEPARTMENT OF FOOD AND AGRICULTURE  
100 CAMBRIDGE ST., BOSTON, MA 02202 617-727-3000 FAX 727-7235

WILLIAM F. WELD  
Governor

ARGEO PAUL CELLUCCI  
Lt. Governor

**Decision Concerning  
The Wetland Impact Study Conducted  
Pursuant to 333 CMR 11.04(4)(c)(2)**

TRUDY COXE  
Secretary

JONATHAN L. HEALY  
Commissioner

**PUBLIC UTILITY VEGETATION  
MANAGEMENT PROGRAM FINDING**

Background

The Rights of Way Management (ROW) Regulations (333 CMR 11:00) promulgated in 1987 prohibit the use of herbicides to control vegetation along utility right of ways on or within ten (10) feet of a wetland unless the following conditions are met:

1. Submission of a study, the design of which is subject to prior review and approval of the Departments of Food and Agriculture and Environmental Protection, evaluating impacts of proposed vegetation management programs on wetlands; and
2. A finding by the Department, after consultation with the Advisory Committee, that the proposed vegetation management program will result in less impacts to the wetland than mechanical control.
3. Notwithstanding the above, no herbicides shall be applied on or within ten feet of any standing or flowing water in a wetland.

On April 28, 1988, The Departments of Food and Agriculture and Environmental Protection approved the scope of the study. In the fall of 1989, Environmental Consultants, Inc. submitted to the Department of Food and Agriculture the study entitled, "Study of the Impacts of Vegetation Management Techniques on Wetlands for Utility Rights-of Way in the Commonwealth of Massachusetts", dated June 1989. The Department consulted with the Vegetation Management Plan (VMP) Advisory panel at their November 15, 1989, December 7, 1989 and August 1, 1991 meetings.

The study provided some broad information of vegetation control along utility right of ways. The Department based its finding solely upon the narrow scope of whether the "proposed vegetation management program will result in less impacts to the wetland than mechanical control."

The following are the major evaluation points the Department considered in reaching its decision.

### **What are the Long-term and Short-term Impacts From Herbicide use and Mechanical Control?**

Since wetlands are not a static, unchanging resource, there is some difficulty in determining the actual long-term impacts from the various vegetation control practices. The extent of wetland alterations must be the most important factor in determining impacts. With limited or selective removal of unwanted plant species in specific locations, it appears that long-term impacts are negligible. While mowing or foliar application can damage non-target species, neither control practice appears to result in adverse long-term impacts if they are carefully executed. Clear cutting, however, has a greater impact on wetlands since both wanted and nuisance species are removed.

Although there were some reservations about the sites that were chosen to determine the level of chemical residues, the study did show that there was not a buildup of background residues of herbicides applied from previous practices. However, there were some trace amounts of petroleum products - bar oil or hydraulic fluid found. The source of these petroleum products is unclear and may have been the result of public activities not related to vegetation management. Retrospective analyses for herbicide residues in previously treated wetland areas is not generally applicable since the herbicides used today are less persistent than those which were used previously. However, these analyses did indicate that the herbicides used in the past do not persist in the environment.

The study clearly demonstrated that adjacent non-controlled wetland areas did not differ significantly in composition and abundance of plant species from the controlled areas. The control practices did not appear to impact the entire wetland ecosystem, since a long-term comparison of wetland plant species composition between controlled and non-controlled sites did not differ significantly. Therefore, the long-term effects on the entire wetland ecosystem were considered negligible.

The determination of the short-term impacts to the wetland from the control practices was the most noted short-coming of the study. However, this was not part of the original scope. The VMP Advisory Panel felt, and the Department agreed, that a short-term environmental fate study would be needed.

The first study indicated that certain mechanical control practices can impact wetlands and disrupt the ecosystem to a greater extent than the judicious use of herbicides. While cutting may result in re sprouting of some unwanted vegetation in a manner unlikely to be encountered in unaltered wetland areas, unregulated mechanical vegetation control could result in the destruction of other non-target plant species.

### **What is the Impact to Non-target Wetland Plant Communities?**

Basal and cut stump treatment with low mobility, short persistence herbicides that are judiciously applied usually do not impact adjacent plant species. Likewise careful selective mechanical cutting (versus mowing or clear cutting) also usually does not impact non-target wetland plants. The greatest potential risk to non-target wetland plants comes from mowing, clear-cutting, and high volume foliar applications. Low volume foliar applications in wetlands may also cause non-target impacts if application guidelines are not followed (e.g. no applications during high winds, or without using anti-drift agents, etc.).

### **Is There Enough Information on Which to Base a Finding?**

As in most environmental assessments, a complete database is not available to answer all of the questions posed by the Department and the Vegetation Management Advisory Panel. Some of the questions posed were entirely valid, but were beyond the scope of the approved study.

The study did provide some clear evidence that selective mechanical and herbicide use does minimally alter wetlands by removing specific plant species. Mechanical mowing operations, however, can result in far greater short-term and potentially long-term impacts to wetlands since both wanted and un-wanted plant species are indiscriminately removed. Additionally, foliar herbicide applications may cause short-term impacts to non-target species.

The Department did not find any significant difference in wetland impacts between careful mechanical removal (selective hand cutting) of unwanted species

and, cut stump or basal treatment with herbicides.

There is no assurance that prohibiting the use of herbicides in wetlands will result in careful mechanical control. If herbicide use is prohibited in wetland areas, mechanical control in wetlands will be the only practice available to utilities. Financial pressures and other considerations may force Utilities to increase mowing and / or the use of more destructive non-chemical control practices due to a lack of alternative control techniques.

On August 29, 1991, the Department made a finding that the submitted study met the approved scope. However, although the study contained useful information, it was also determined that additional data needed to be gathered and analyzed because the study was inconclusive in a number of instances.

The Department issued a finding that a proposed vegetation program containing the specific elements listed does not pose an unreasonable adverse impact to wetlands. In addition, the Department required a study be conducted to provide important environmental fate data necessary for the long-term implementation of the rights of way program.

#### **AUGUST 1991 FINDING**

*The Department of Food and Agriculture finds that a proposed vegetation program containing the following elements will not pose an unreasonable adverse impact to wetlands:*

1. *The Integrated pest Management (IPM) system, as described in the Vegetation Management Plan and Yearly Operation Plan, is utilized in wetland areas. The IPM system must, at a minimum, place emphasis on encouraging low growth plant species to discourage unwanted vegetation and, minimizing the frequency and amount of herbicide use by only controlling specific non-conifer tree species which will impact transmission line operation and access to the right of way.*
2. *Herbicides may be applied by basal, cut stump or low volume foliar methods. Foliar applications must include the use of drift reduction agents. Foliar applications may only be conducted in situations where basal and cut stump treatments are not appropriate based on the size of the vegetation and potential for off-target drift. Foliar applications must not result*

*in the off-target drift to non-target species.*

3. *Herbicides are not applied to conifer species (pine, spruce, fir, cedar and hemlock).*
4. *Carriers for herbicides do not contain any of the following petroleum based products: jet fuel, kerosene or fuel oil. Carriers will be subjected to review by the Department of Food and Agriculture and DEP through 333 CMR 11.04(1)(d).*
5. *Herbicides must be recommended by the Department of Food and Agriculture and DEP through 333 CMR 11.04(1)(d).*
6. *Herbicides may only be applied by hand operated equipment containing no more than 5 gallons of diluent.*
7. *All other restrictions within sensitive areas remain in effect. In accordance with 333 CMR 11.04(1)(c), no person shall apply herbicides for the purposes of clearing or maintaining a right-of-way in such a manner that results in drift to any areas within 10 feet of standing or flowing water in a wetland or area within 400 feet of a public drinking water supply well; or area within 100 feet of any surface water used as a public water supply; or area within 50 feet of a private drinking water supply identified under 333 CMR 11.04(2)(c)(3).*
8. *Approved Vegetation Management Plans and Yearly Operation Plans must be amended as needed to reflect the conditions of this FINDING.*
9. *The Department further requires that environmental fate data be provided by the utilities that are applying herbicides to rights-of-way, which characterizes the movement of herbicides applied to wetland areas under these conditions. The Department further requires that all study protocols be reviewed by the Vegetation Advisory Panel and be approved by the Department of Food and Agriculture and the Department of Environmental Protection. Failure to submit the required information by the dates outlined in the schedule below will render this finding void.*

*An approvable scope of the study developed and*

*submitted by January 1, 1992.*

*Field data submitted to DFA by October 1, 1992. Data must be consistent with the requirements of the approved scope.*

*Draft study report submitted to DFA by October 1, 1993.*

*Final Report submitted to DFA by March 1, 1994.*

10. *The Department reserves the right to amend or withdraw its FINDING at anytime if it determines that the use of herbicides in wetland areas poses a greater impact than mechanical control or may pose an unreasonable adverse effect to humans or the environment.*
11. *This finding expires December 31, 1994.*

*Therefore, herbicide use may be allowed to control certain vegetation along utility right of ways if the proposed vegetation program as described in the approved Vegetation Management Plan and Yearly Operational Plans contains the above elements.*

On, April 27, 1992, the Departments of Food and Agriculture and Environmental Protection approved the scope of the "*Study of Fates of Herbicides in Wetlands on Electric Utility Rights of Way in the Massachusetts Over the Short Term*". The final report was submitted to the Department of Food and Agriculture December 31, 1993. The Department began reviewing the report in consultation with the VMP Advisory panel.

At the end of 1994, the Department had not completed its review. Therefore, on December 22, 1994 the Department extended the current finding for one year (to December 31, 1995) or until such time it is able to make a final determination, whichever occurs first.

## Fates of Herbicides Over the Short Term Study

The objective of this study was to determine the short term environmental fate and assess the impacts of selected herbicides applied by four common Right-of-Way management techniques. Additionally, the study evaluated which of the four Right-of-Way management techniques provides the most effective control of target vegetation and which techniques produced the least impact on the non-target plant community, and consequently the least alteration of wooded wetland community.

The study investigated the environmental fate of two herbicides, which are typically used to control vegetation on ROWs, and are included in the list recommended for use in sensitive areas. These herbicides were chosen, among other reasons, for their use patterns, size of area treated, and application rates. Accord, which contains the active ingredient glyphosate, is the primary herbicide used for cut stump treatment and is also used for foliar application. Garlon 4, which contains the active ingredient triclopyr, is the primary herbicide used for basal applications. Collectively these products represent the typical herbicides used to control vegetation on ROWs.

### Results

A summary of the most important findings and conclusions of the study include:

\* Based upon the samples collected immediately after application, at 1 week, 1 month, 3 months and 1 year:

- The two herbicides, glyphosate and triclopyr degrade rapidly. Residues reach low quantities quickly, often less than detection limits, within a year.; and
- There is essentially no movement either laterally or vertically from the treated sites by glyphosate. Triclopyr does not move laterally, but was noted to move vertically in small amounts.

\* Drift cards indicate that the herbicides are neither splashed nor carried any distance by the wind. Glyphosate drift is not a significant problem resulting in slight effects on neighboring vegetation and are not detectable in the next year's growth. Sphagnum moss next to trunks treated basally with triclopyr were killed within three months in a 15 cm diameter circle immediately around the target tree, but the dead circle did not continue to enlarge.

\* Filter paper recovered immediately after application of herbicide showed that all methods of application deposit herbicide on the ground. Treated bare soil samples showed as consistent a drop in herbicide concentrations and as little vertical movement as did samples beneath target trees.

\* The use of the herbicides glyphosate and triclopyr at the strengths and application rates used does not pose a risk of accumulation in organically rich soils.

\* Herbicide concentrations in soil continue to decline as time advances.

\* Rainfall occurring more than a week after application does not appear to spread the herbicide nor does groundwater carry any substantial fraction of what has been applied to a particular site down into the soil or horizontally.

\* Based upon the results of the study, an assessment of the environmental fate, and observations of both treatment effectiveness and non-target impacts, an effective and environmentally sensitive ranking from most effective and posing least potential environmental risks to least effective and posing the most environmental risk is suggested:

1. Most effective control and exclusive effect on target:  
low-volume foliar (with glyphosate).
2. Most consistent control with lethal effects on bordering vegetation:  
high-volume foliar (with glyphosate)
3. Total control with rings of dead vegetation around treated trunks:  
low-volume basal (with triclopyr)
4. Incomplete target control and leaving largest soil residues:  
cut-stump (with glyphosate)

It is important to note that the results of the second short term study suggest that the most efficacious application techniques and which pose the lowest environmental risk were not those recommended in the interim finding.

## DEPARTMENT DETERMINATION

Based upon the results of the two ROW impact studies, the general information in the literature, and after consultations with the Vegetation Management Panel, the Department finds that the following proposed vegetation management program will result in less impacts to wetlands than exclusive use of mechanical control methods. Therefore, the Department finds that any vegetation management program that incorporates the conditions under which the study was conducted as well as taking into account the results of previous studies, will result in the least impacts to wetlands.

These conditions include:

1. An Integrated Pest Management (IPM) system, also known as Integrated Vegetation Management (IVM), as described in the Vegetation Management Plan and Yearly Operation Plan is utilized in wetland areas. The IPM system must, at a minimum, place emphasis on encouraging low growth plant species to discourage unwanted vegetation and, minimizing the frequency and amount of herbicide use by only controlling specific non-conifer tree species which will impact transmission line operation and access to the right of way.
2. Herbicides may be applied by low volume foliar, basal, or cut stump methods. Foliar applications must include the use of appropriate drift reduction agents, and must not result in the off-target drift to non-target species. Basal and cut-stump treatments may be conducted in those situations where the size of the vegetation, potential for off-target drift, or other considerations precludes the use of low-volume foliar applications. Cut stump and basal applications shall be restricted, when practicable, to periods when static ground water levels are low or otherwise when conditions are less susceptible to potential contamination.
3. Herbicides are not applied to conifer species (pine, spruce, fir, cedar and hemlock).
4. Carriers for herbicides do not contain any of the following petroleum based products: jet fuel, kerosene or fuel oil. Carriers will be subjected to review by the Department of Food and Agriculture and DEP through 333 CMR 11.04(1)(d).

5. Only herbicides recommended by the Departments of Food and Agriculture and Environmental Protection through 333 CMR 11.04(1)(d) may be used in sensitive areas.
6. Herbicides may only be applied by hand operated equipment containing no more than 5 gallons of diluent.
7. All other restrictions within sensitive areas remain in effect. In accordance with 333 CMR 11.04(1)(c), no person shall apply herbicides for the purposes of clearing or maintaining a right-of-way in such a manner that results in drift to any areas within 10 feet of standing or flowing water in a wetland or area within 400 feet of a public drinking water supply well; or area within 100 feet of any surface water used as a public water supply; or area within 50 feet of a private drinking water supply identified under 333 CMR 11.04(2)(c)(3).
8. A minimum of twelve months must elapse between herbicide treatments. Only touch-up applications may be performed between twelve and twenty four months.
9. Approved Vegetation Management Plans and Yearly Operation Plans must be amended as needed to reflect the conditions of this determination.

.....

Therefore, herbicide use may be allowed to control certain vegetation along utility right of ways if the proposed vegetation program as described in the approved Vegetation Management Plan and Yearly Operational Plans contains the above elements.

  
 \_\_\_\_\_  
 Jonathan Healy, Commissioner

10/12/95  
 \_\_\_\_\_  
 Date

## **Appendix 6**

### **Preface to 310 CMR 10.00**



310 CMR: DEPARTMENT OF ENVIRONMENTAL PROTECTION  
PREFACE TO WETLANDS REGULATIONS RELATIVE TO RIGHTS OF WAY  
MANAGEMENT 1987 REGULATORY REVISION

In 1983, the Massachusetts Pesticide Control Act, M.G.L. c. 132B, was amended to require notification of conservation commissions prior to application of herbicides on rights of way. Many commissions became aware for the first time that application of herbicides on rights of way may result in alteration of wetlands and, with the exception of exempt utilities, may require action under the

M.G.L. c. 131, § 40. On July 18, 1986, the Department issued a final decision after adjudicatory hearing in DEP Hearing Docket Nos. 83-28 and 83-35 (Clinton and Leverett) finding that the application of specific herbicides by the railroads to track and ballast within 100 feet of wetland areas would alter those wetlands and was therefore subject to jurisdiction under M.G.L. c. 131, § 40, requiring the filing of Notices of Intent with the local conservation commissions.

The Department of Food and Agriculture (DFA) initiated a Generic Environmental Impact Report (GEIR) evaluating alternatives for rights of way management. A technical advisory task force of environmentalists, agencies and rights of way managers assisted in the GEIR preparation and, based on results of the study, recommended to the Secretary of Environmental Affairs a framework for a coherent state-wide rights of way regulatory program. DFA published draft regulations to implement this program in 1986 and received extensive public commentary. Final regulations, 333 CMR 11.00, became effective on July 10, 1987.

The DFA regulations require persons proposing to apply herbicides to rights of way to first receive approval of a five year Vegetation Management Plan (VMP) and Yearly Operating Plan (YOP). These regulations identify certain "sensitive areas", including wetlands and public and private surface and groundwater supplies, where the application of herbicides is, in most instances, prohibited, and areas adjacent to the sensitive areas where use of herbicides is curtailed.

DEP worked closely with DFA to include provisions which give maximum protection for water supplies and provide protection for wetlands at least equal to that provided under the M.G.L. c. 131, § 40 and 310 CMR 10.00. To eliminate duplicate review under M.G.L. c. 131, § 40, DEP has adopted changes to the wetlands regulations which allow herbicide applications on rights of way in accordance with the DFA regulations without filing a Notice of Intent under the M.G.L. c. 131, § 40. However, non-exempt applicants will still be required to file a Request for Determination of Applicability to the appropriate conservation commission to establish boundaries of wetlands on or near the right of way. Specifically, these regulations presume that work performed in accordance with a VMP and YOP, as may be required under DFA regulations, will not alter an area subject to protection under M.G.L. c. 131, § 40.

During the public comment period on its proposed regulations, the Department identified several issues of major concern. After consideration of all comments, the Department has determined that, except for minor points of clarification and the addition of an automatic expiration date, no further changes in the regulations are warranted at this time. A discussion of these issues follows.

A. Presumption vs. Limited Project. Several commentators suggested that conservation commissions should retain the authority to review each herbicide application on rights of way through the usual Notice of Intent process. These regulations create a presumption that herbicide application carried out in accordance with an approved VMP and YOP under the DFA regulations will not alter wetlands and that the filing of a Notice of Intent is therefore not required. This procedure was established pursuant to the recommendation of the GEIR task force which states:

The regulations which provide for approval of Vegetation Management Plans by the Department of Food and Agriculture should be conditioned on review and approval by the Department of Environmental Protection (DEP) of those portions of the Plans that deal with wetlands. The DEP should be required to certify to the DFA that these portions of the Plans will result in compliance with the substantive and procedural provisions which protect the interests of the M.G.L. c. 131, § 40. If the regulations are so drawn, activities under a Plan approved by DEP would not constitute an alteration of wetlands as defined under 310 CMR 10.00.

Since the DFA regulations provide that DEP is a member of the VMP advisory panel which reviews and makes recommendations on the approval of VMPs, the GEIR task force recommendations have been fully implemented. Therefore, the Department has determined that it would be duplicative to require the filing of individual Notices of Intent in each municipality for each application of herbicides to rights of way.

B. Adequacy of Setback from Wetlands. The DFA rights of way regulations prohibit application of herbicides on or within ten feet of wetlands and strictly limit herbicide application from ten feet to 100 feet of wetlands. Many commentators questioned the adequacy of these setback requirements and suggested that a 50 or 100 foot no spray zone would be more appropriate. Several commentators suggested that the proposed setback requirements were inconsistent with the Department's adjudicatory hearing decision in the Clinton and Leverett cases.

The no spray zone surrounding wetlands is necessary for three reasons: to compensate for mapping errors, to compensate for applicator errors and to assure that herbicides will not migrate into wetlands after application on the adjacent uplands. During the public comment period, the Department received no evidence demonstrating that the ten-foot setback established in the DFA regulations will not be adequate. The DFA regulations establish a procedure for selecting a limited number of herbicides that may be applied in the limited spray zone (from 10 to 100 feet from wetlands) which is adjacent to the no spray zone. Herbicides that will be selected for use in these limited spray zones under the DFA regulations are those which available data demonstrate will not migrate further than ten feet.

The applicators have argued that they can maintain a level of accuracy in mapping of wetlands and in application of herbicides to assure that herbicides will not be inadvertently applied within ten feet of wetland areas. The Department is not convinced that these claims are unreasonable; however, in order to confirm their accuracy, the Department has included in the final regulations an automatic expiration date two years from the effective date, which is coterminous with the expiration date of the DFA regulations. During the two-year effective period of these regulations, the Department expects applicators to conduct studies monitoring

herbicide application operations and to submit a report concerning impacts of herbicide application on wetlands under these new regulations detailing the accuracy of wetlands mapping, the accuracy of herbicide application, and the extent of herbicide migration. The results of this study will provide a basis for recommendations by the Department for amendments to the DFA regulations and a decision on reauthorization of these amendments to the Department's wetland regulations.

Finally, the Department does not find the setbacks requirements established in the DFA regulations to be inconsistent with its decision in the Clinton and Leverett cases. In that decision, the Department assumed a worst-case analysis in terms of an herbicide known to be highly mobile which was applied to the track and ballast areas adjacent to wetlands. The Department found, based on the particular facts of these cases and the particular herbicide proposed for application that there would be a migration of that herbicide into the wetlands from application within the 100-foot buffer zone that would be sufficiently concentrated to cause alterations of the wetlands plants. However, the DFA rights of way management regulations set up a procedure for identification of herbicides which are relatively immobile and which are preapproved for application on the buffer zone in order to avoid alteration of wetlands plants. Furthermore, guidelines for application of the selected herbicides will also be established. Finally, no herbicides may be applied within ten feet of wetland areas. In light of the strict controls placed on application of herbicides within the 100-foot buffer zone under the DFA regulations, the Department finds that adoptions of the proposed regulatory scheme is fully consistent with its previous adjudicatory hearing decision in the Clinton and Leverett cases.

C. Impacts of Herbicides Application on Wildlife Habitat. The Department is currently developing regulations under M.G.L. c. 131, § 40 to protect wildlife habitat. The effective date of these regulations is November 1, 1987. One commentator expressed concern regarding the impact of herbicide application on wildlife habitat in wetlands, and particularly on the habitat of rare, "state-listed" wildlife species. As discussed above, the Department has determined that the DFA regulations provide for protection of wetlands from alterations due to herbicide application. However, the DFA regulations do not include flood plains in their definition of wetlands, although those regulations do prohibit herbicide application within 10 feet of any standing or flowing surface water. Beyond that, there is no specific protection of wildlife habitat, including rare species, in floodplain areas.

The Department is concerned that the DFA regulations do not specifically address protection of wildlife habitat in floodplains, in particular those rare, "state-listed" wildlife species. Therefore, as a member of the VMP advisory panel, the Department will review VMPs for potential effect on wildlife habitat and specifically will recommend disapproval of any VMP that will have an adverse effect in areas mapped by the Natural Heritage and Endangered Species Program as habitat of any rare, "state-listed" wildlife species. Furthermore, the Department expects applicators to incorporate into the previously discussed two-year monitoring study a section detailing the effects of herbicide application on wildlife habitat in floodplains and on the habitat of rare, "state-listed" wildlife species. The Department will use the results of this study as the basis for recommending any amendments to the DFA regulations and a decision on reauthorization of these amendments to the Department's wetlands regulations.



## **Appendix 7**

### **Sensitive Areas: Illustrations of No-Spray and Limited Spray Areas**



# Vegetation Control Strategies in Sensitive Areas

Required by 333 CMR 11.00 and/or approved Vegetation Management Program and Yearly Operational Plan.

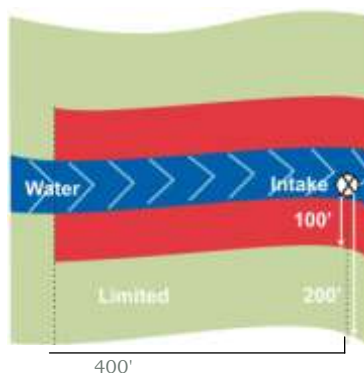
## Sensitive areas not readily identified in the field:

- ◆ Mapped on electronic USGS Topographic Maps.
- ◆ Contractor will be provided electronic and hard copy of maps with which to flag the boundaries of no-herbicide zones within the right-of-way (ROW) prior to herbicide application.

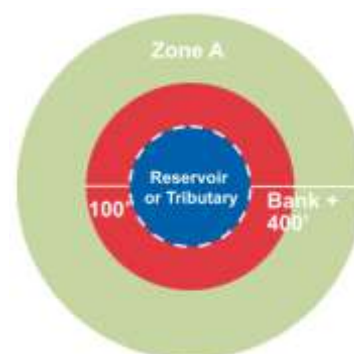
**Public Ground Water  
Supply Well  
Zone I**



**Drinking Water  
Intake  
Class B**



**Public Surface  
Water Source  
Class A**



**Identified Private  
Drinking Water  
Well**



*Vegetation Control Strategies in Sensitive Areas**continued*Sensitive areas readily identifiable in the field:

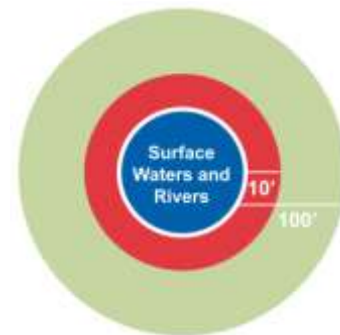
- ◆ Consult USGS Topographic Maps
- ◆ Contractor will be provided electronic and hard copy of maps with which to flag the boundaries of no-herbicide zones within the right-of-way (ROW) prior to herbicide application.
- ◆ Contractor will mark additional areas not found on maps

**Wetlands**

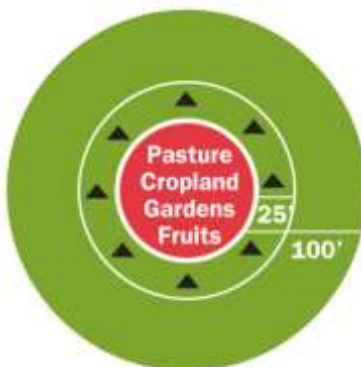
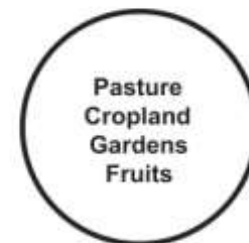
Defined by Chapter 131,  
Section 40

**Surface Waters and Rivers**

All surface water and water over wetlands.  
Mean high water for rivers.

**Agricultural Areas**

Active - Growing Season

**Inactive Agricultural**

No Restrictions

## Vegetation Control Strategies in Sensitive Areas

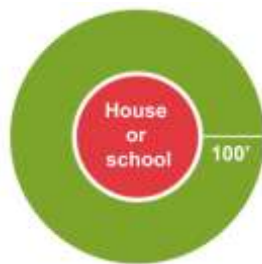
continued

Sensitive areas readily identifiable in the field: continued

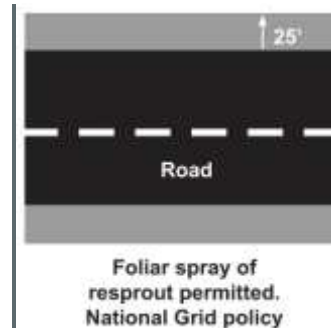
- ◆ Consult USGS Topographic Maps
- ◆ Contractor will be provided electronic and hard copy of maps with which to flag the boundaries of no-herbicide zones within the right-of-way (ROW) prior to herbicide application.
- ◆ Contractor will mark additional areas not found on maps

### Inhabited Areas











Where people live, work, or gather



### Road Crossings



## KEY

	= No Herbicide Use			= Limited Herbicide Use
	= Water	1.) Herbicide recommended for use in sensitive area: per (333 CMR 11.04(1)(d)).		
	= Public Ground Water Supply Well or Private Well	2.) Cut stump, basal and <u>low</u> pressure foliar.		
		3.)  24 months elapsed since previous treatment.		
		 12 months elapsed since previous treatment.		
		4.)  No herbicides applied to conifer species and carriers reviewed by DAR and DEP.		
		5.)  Cut stump only.		
		6.)  Cut stump and basal treatments. (Foliar application to resprouts is permitted.) No other conditions.		



## **Appendix 8**

### **Remedial Plan to Address Spills Form**



**REPORTABLE SPILLS**

(Spills of reportable quantity of material per 310 CMR 40.0000):

**FOLLOW STEPS 1-11****NON-REPORTABLE SPILLS:**

FOLLOW STEPS 1-4, 7-11 as appropriate &amp; contact the TransCanada representative.

Order	ACTION	Done (✓)
1	Use any and all PPE as directed by product label or SDS.	
2	Cordon-off spill area to unauthorized people and traffic to reduce the spread and exposure of the spill	
3	Identify source of spill and apply corrective action, if possible stop or limit any additional amounts of spilled product.	
4	Contain spill and confine the spread by damming or diking with soil, clay or other absorbent materials.	
5	Report spills of "reportable quantity" to the Mass. DEP and MDAR:	
	MDAR, Pesticide Bureau (617) 626-1700	
	Massachusetts Department of Environmental Protection, Emergency Response Section (call within 2 hours)	
	Main Office: (888) 304-1133	
	Fill in appropriate district office	
6	If the spill cannot be contained or cleaned-up properly, or if there is a threat of contamination to any bodies of water, immediately contact any of the following applicable emergency response personnel:	
	local fire, police, rescue 911	
	National Grid's Rep: (Listed in YOP)	
	Product manufacturer(s)	
	1 1	
	2 2	
	3 3	
	Chemtrec (800) 424-9300	
	additional emergency personnel	
	If there is a doubt as to who should be notified, contact local State Police Barracks: FILL IN	
7	Remain at the scene to provide information and assistance to responding emergency clean-up crews	
8	Refer to the various sources of information relative to handling and clean-up of spilled product	
9	If possible, complete the process of "soaking up" with absorbent materials	
10	Sweep or shovel contaminated products and soil into leak proof containers for proper disposal at approved location	
11	Spread activated charcoal over spill area to inactivate any residual herbicide	



**Appendix 9**  
**Bibliography**



## Bibliography

### SENSITIVE MATERIALS LIST:

A current list of the *Sensitive Area Materials List* and individual *Fact Sheets* on these herbicides are available at:

<http://www.mass.gov/eea/agencies/agr/pesticides/rights-of-way-vegetation-management.html>

### SAFETY:

Calvert, Geoffrey, Plate, D.K., Das, R., Rosales, R., Shafey, O., Tomsen, C., Male, D., Beckman, J., Arvizu, E. & Lackovic, M. "Acute Occupational Pesticide-Related Illness in the US, 1998-1999: Surveillance Findings From the SENSOR-Pesticide Program." American Journal of Industrial Medicine 45:14-23, 2004.

"Hazards Associated with All-Terrain Vehicles (ATVs) in the Workplace." Safety and Health Information Bulletin, SHIB 08-03-2006.

National Grid's Incident Management System (IMS) a Safety, Health and Environmental Services' online management tool.

"Safety Hazard Information Bulletin: Employees' Exposure to Possible Pinch Point Hazard on Skid Steer Loaders Equipped with Backhoe Attachments," Hazard Information Bulletin, November 12, 1986.

### IVM and the Environment:

Askins, Robert A. Restoring North America's Birds: Lessons from Landscape Ecology, Yale University Press, New Haven, CT, 2000.

\_\_\_\_\_. "Sustaining Biological Diversity in Early Successional Communities: The Challenge of Managing Unpopular Habitats," Wildlife Society Bulletin 29(2) (Summer, 2001).

Belisle, Francis. "Wildlife Use of Riparian Vegetation Buffer Zones in High Voltage Powerline Rights-of-Way in the Quebec Boreal Forest." 7th International Symposium on Environmental Concerns in Rights-of-Way Management, 1999.

Bramble, W.C. and Burns, W.R. "A Long-term Ecological Study of Game Food and Cover on a Sprayed Utility Right-of-Way." Bulletin No. 918, Purdue University, 1974:16.

Bramble, W.C; W.R. Burns; R.J. Hutnik, and S.A. Liscinsky. "Interference Factors Responsible for Resistance of Forb-Grass Cover Types to Tree Invasion on an Electric Utility Right-of-Way." Journal of Arboriculture 22(2), March 1996: 99-105.

Bramble, W.C., W.R. Byrnes, and R.J. Hutnik. "Resistance of Plant Cover Types to Tree Seedling Invasion on an Electric Utility Transmission Right-of-Way." Journal of Arboriculture, 16(5), May 1990.

“Central Vermont Public Service Corporations 2006 Strategy; T&D Forestry.” Rutland, VT, 2006.

Confer, John L. “Management, Vegetative Structure and Shrubland Birds of Rights-of-Way.” 7th International Symposium on Environmental Concerns in Rights-of-Way Management, 1999.

Deubert, K.H. Studies on the Fate of Garlon 3A and Tordon 101 Used in Selective Foliar Application in the Maintenance of Utility Rights-of-Way in Eastern Massachusetts. Final Report prepared for New England Electric et. al., 1985.

Environmental Consultants, Inc. Study of the Impact of Vegetation Management Techniques on Wetlands for Utility Rights of Way in the Commonwealth of Massachusetts. Final report prepared for New England Electric et.al, 1989.

\_\_\_\_\_. Determination of the Effectiveness of Herbicide Buffer Zones in Protecting Water Quality on New York State Powerline Rights-of-Way. Final report for the Empire State Electric Energy Research Corporation, 1991.

Foster, David R. “Conservation Issues and Approaches for Dynamic Cultural Landscapes,” Journal of Biogeography, Volume 29, Numbers 10/11, October/November 2002: 1533.

Goodrich-Mahoney, John W.; Abrahamson, Lawrence, P.; Ballard, Jennifer I.; Tikalsky, Susan M. 8th International Symposium Environmental Concerns in Rights-of-Way Management, 2004.

Harrison Biotech, Inc. A Generic Environmental Impact Report on the Control of Vegetation on Utility and Railroad Rights-of-Way in the Commonwealth of Massachusetts. Final Report prepared for the Department of Food and Agriculture, Commonwealth of Massachusetts, 1985.

Hickler, Matt, MANHESP approved Review Biologist, Reports for National Grid, NSTAR, Northeast Utilities, TransCanada under *321 CMR 10.00 Massachusetts Endangered Species Act Regulations*. (Also Reports in NH and VT), 2006-2013.

Marshall, James S. “Effects of Powerline Right-of-Way Vegetation Management on Avian Communities.” 7th International Symposium on Environmental Concerns in Rights-of-Way Management, 1999.

Marshall, James S. and Vandruff, L.W. “Impact of Selective Herbicide Right-of-Way Vegetation Treatment on Birds,” Environmental Management Vol. 30, No. 6, December 2002.

- Nickerson, N.H, G.E. Moore and A.D. Cutter. Study of the Environmental Fates of Herbicides in Wetland Soils on Electric Utility Rights-of-Way in Massachusetts over the Short Term. Final Report prepared for New England Electric et.al, December 1994.
- Neiring, W.A. and R.H. Goodwin. "Creation of Relatively Stable Shrublands With Herbicides: Arresting Succession on Rights-of-Way and Pastureland." Ecology 55(4), 1974.
- Niering, W.A. "Roadside Use of Native Plants: Working with Succession, An Ecological Approach in Preserving Biodiversity." Roadside Use of Native Plants: [http://www.environment.fhwa.dot.gov/ecosystems/vegmgmt\\_rdsduse.asp](http://www.environment.fhwa.dot.gov/ecosystems/vegmgmt_rdsduse.asp).
- Nowak, Christopher.A. and L.P. Abrahamson. "Vegetation Management on Electric Transmission Line Rights-of-Way in New York State: The Stability Approach to Reducing Herbicide Use." Proceedings of the International Conference on Forest Vegetation Management, Auburn University, April 1993.
- Nowak, Christopher A. & Ballard, Benjamin D. "A Framework for Applying Integrated Vegetation Management on Rights-of-Way." Journal of Arboriculture 31(1) (January 2005).
- Oehler, James D., ed; Darrel F. Covell, ed; Steve Capel, ed, and Bob Long, ed. Managing Grasslands, Shrublands and Young Forests for Wildlife; A Guide for the Northeast. The Northeast Upland Habitat Technical Committee. 2006.
- Schaefer, Valentin. "Rights-of-Way in Support of Biological Conservation" 7th International Symposium on Environmental Concerns in Rights-of-Way Management, 1999.
- United States Environmental Protection Agency. "Fact Sheet: Integrated Vegetation Management." EPA 731-F-08-010 (Oct. 2008).
- Yahner, Richard H. "Wildlife Response to More than 50 years of Vegetation Maintenance on a Pennsylvania U.S., Right-of-Way." Journal of Arboriculture 30(2), March 2004.
- \_\_\_\_\_. "State Game Lands 33 Research and Demonstration Project—57 years of Continuous Study on the Shawville to Lewiston 230-kV line of First Energy (Penelec). 2009.
- \_\_\_\_\_. "2009 Annual Report to Cooperators. Green Lane Research and Demonstration Project: 23 Years of Continuous Study." (2009).

