

**Rights-of-Way
Vegetation Management Plan**
for the Northeast Utilities System,
Western Massachusetts Electric Company,
Holyoke Water Power Company,
and
Holyoke Power and Electric Company



2014 – 2018

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I. INTRODUCTION

This Vegetation Management Plan (VMP) describes the Northeast Utilities System (NU), Western Massachusetts Electric Company's (WMECO), Holyoke Water Power Company's (HWP), and Holyoke Power and Electric Company's (HPE) (hereinafter collectively referred to as "The Company") integrated vegetation management program for transmission and distribution rights-of-way and local distribution lines over the 5 year period from 2014 through 2018 in compliance with the Commonwealth of Massachusetts 333 CMR 11.00, Right of Way Management regulations.

Rights-of-way vegetation control has been performed utilizing herbicides to control undesirable plant species on Western Massachusetts rights-of-way for over 40 years. The targeting of selected plant species that pose a risk to the safe and reliable operation of the electric facilities has proven to be very effective in sustaining plant communities consisting of low growing shrubs, forbs, grasses and ferns.

Preserving the low growing plant cover slows the natural progression of plant succession to a climax stage by preventing the invasion and development of undesirable tall growing trees. Desirable shrubs are also encouraged since they tend to be sun loving, shade intolerant plants which thrive in full sunlight. As low growing plant communities become denser, the number of undesirable stems will be lower and the need for constant control of target vegetation is reduced.

The selection of desirable species allowed to remain on the site is another key to effective natural control. Control operations are based upon native species present and suited to the actual site conditions. For example, basal applications tend to favor low growing shrubs such as blueberry, while foliar applications favor ferns, grasses, and herbs. By managing existing relationships between various plants and the environment, control procedures can be prescribed to foster the natural development evident on the right-of-way.

Integrated Vegetation Management

The management of vegetation along the Company's transmission and distribution rights-of-way is performed utilizing Integrated Vegetation Management (IVM) practices. The basis for IVM calls for the use of all methods of vegetation control combined in an integrated approach without the reliance on one standard method of control at all times under all conditions. IVM programs incorporate control methods that include cultural, manual, mechanical, chemical and when appropriate, biological controls to obtain the desired results of a stable, low-growing vegetation community along powerline corridors. All methods are employed under various conditions and situations in accordance with the desired goals of the Company's vegetation management program. A definition and examples of when each practice is employed is as follows:

Manual: the use of manual labor employing hand saws, chainsaws or brush saws to cut and remove targeted plant species. This method is used when targeted species exceed 12 feet in height, in areas where herbicide use is prohibited or for the selective removal of targeted species in company specified sensitive areas.

Mechanical: the use of mechanized mowing units to cut tall, dense stands of targeted plant species. This method is used in areas where the use of chemicals is prohibited or to reduce the heights of dense stands of vegetation to a more efficient and effective treatment height where chemical use is not restricted.

Chemical: the use of federally approved and state registered herbicides to eliminate targeted vegetation. This method is used to completely eliminate targeted plant species through the destruction of the plant's ability to sustain necessary metabolic functions to survive and grow. Herbicide applications are performed where allowed, to individual stems of targeted species less than 12 feet in height.

Biological: the use of living organisms to effect control of a targeted pest. This method is not employed at this time as there are no effective biological controls currently on the market but is listed for potential future use as products are developed and approved.

Cultural: the inhibition of the development of targeted vegetation species by promoting competition and the development of stable, resistant plant communities to seedling invasion. The Company's approach to selective control – removing only those individual targeted tree, invasive shrub and vine species – while preserving the native, low-growing and desirable plant species, is the major goal of cultural control.

While there are several methods of controlling target vegetation, under certain site conditions the use of herbicides is not appropriate and cutting operations are conducted without them. Also, hand-cutting and mowing have a certain range of site conditions under which they are applicable. Conditions which determine the control technique include sensitive areas, weather, visual aesthetics, time of year, height and/or density of vegetation, access, etc. Since these factors vary from one right-of-way to the next, the proper control technique must be suited to the actual site conditions. These factors are recognized in selecting the appropriate control technique applicable to the right-of-way.

An integrated approach to vegetation management, including the prudent use of herbicides where appropriate, provides multiple use benefits. Opportunities for wildlife, recreation, nature study and aesthetic values such as viewing plants and animals may coexist when they do not interfere with safety and the operation of the right-of-way. In addition, agriculture, residential, and industrial land uses extend onto the Company's rights-of-way.

Location of Rights-of-Way

The Company's service area extends from the Berkshire Mountains bordering New York State to the highly urbanized area surrounding Springfield, and reaches in a north-south direction from the Vermont-New Hampshire border to Connecticut.

The Massachusetts portion of the Company's service area is comprised of four operating subsidiaries or units located in western Massachusetts. The Northeast Utilities System Transmission Unit operates the transmission system in the mid to western sections of Massachusetts. The Western Massachusetts Electric Company (WMECO) operates the distribution facilities and provides electrical service to over 195,400 customers across western Massachusetts. The Holyoke Water Power (HWP) operates both transmission and distribution facilities which serve industrial customers in Holyoke. Finally, the Holyoke Power and Electric Company (HPE) operates both transmission and distribution facilities in Holyoke, South Hadley and Chicopee.

Electric service is delivered through 400 pole miles of transmission lines, 150 pole miles of bulk supply distribution lines and 3,300 pole miles of local distribution lines. Transmission line rights-of-way are the backbone of the system and operate at voltages ranging from 69,000 to 345,000 volts. They provide the connection between generating plants and area substations and are inter-connected with the transmission facilities of other utilities. Bulk supply distribution rights-of-way operate at either 23,000 or 13,800 volts. They provide the link between substations and local distribution lines which deliver electrical energy to customers. Approximately 90% of the local distribution lines are located along roads and driveways, bordering on a variety of privately and publicly owned land. The other 10% are off-road lines which cross property with a wide range of land uses including forestland, agricultural and recreational areas, and backyards.

The Company's rights-of-way are located in the following 72 municipalities:

Agawam	East Longmeadow	Longmeadow	Southampton
Amherst	Erving	Ludlow	South Hadley
Ashfield	Gill	Middlefield	Southwick
Becket	Granby	Montague	Springfield
Belchertown	Granville	Montgomery	Stockbridge
Bernardston	Greenfield	New Ashford	Sunderland
Blandford	Hadley	Northfield	Tolland
Buckland	Hampden	Otis	Tyringham

Cheshire	Hancock	Pelham	Warwick
Chester	Hatfield	Peru	Washington
Chesterfield	Hinsdale	Pittsfield	Wendell
Chicopee	Holyoke	Plainfield	Westfield
Colrain	Huntington	Richmond	Westhampton
Conway	Lanesborough	Russell	West Springfield
Cummington	Lee	Sandisfield	Whately
Dalton	Lenox	Savoy	Wilbraham
Deerfield	Leverett	Shelburne	Windsor
Easthampton	Leyden	Shutesbury	Worthington

II. GOALS AND OBJECTIVES

This section summarizes the goals and objectives of this vegetation management plan.

A. Goals of Vegetation Management Plan

The primary goal of this electric utility right-of-way management plan is the control of undesirable vegetation utilizing integrated management practices and establishment of standard operating procedures to ensure the maintenance of safe and uninterrupted electric service through its transmission and distribution lines. Physical and visual access must also be assured in order to permit routine and emergency line maintenance and operations which are essential to preserve continuity and reliability of service.

This plan is a guiding document which provides structure and sensibility to the Yearly Operational Plans (YOP's). A YOP will be prepared each year to describe the detailed vegetation management operations for the calendar year consistent with the terms of the VMP's.

B. Objectives of Vegetation Management Plan

The principal objective of rights-of-way vegetation management is to selectively eliminate that vegetation which may grow tall enough to potentially short circuit overhead conductors or significantly restrict physical access on the right-of-way. Selective control is obtained by targeting certain plant species and either cutting, or treating with herbicides, the individual stems of each targeted plant. This management program will accomplish that objective at the lowest cost to its customers with due regard for worker safety, protection of public health and without unreasonable adverse effects on the environment, including the protection of sensitive areas. Selective control benefits wildlife habitat for many species of animals by encouraging plant communities that provide food and cover. The program is also designed to maintain acceptable appearance of the right-of-way and to minimize erosion by allowing the development of low shrubs and ground cover. The low shrubs and ground cover inhibit the re-establishment of target tree species.

The foregoing will be accomplished in full compliance with all applicable state and federal laws and regulations.

C. Sensitive Areas

Sensitive areas are any areas within the right-of-way, including no-spray and limited-spray areas where public health, environmental or agricultural concerns warrant special protections to minimize risks of unreasonable adverse effects.

Special protection is afforded sensitive areas in which public health, environmental or agricultural concerns warrant special protection to further minimize risks of unreasonable adverse effects. Herbicide use is limited or restricted near identified sensitive areas.

Sensitive areas include but may not be limited to the following:

- Public and private water supplies
- Standing or flowing water
- Wetlands
- Vernal Pools
- Residential areas
- Agricultural Areas
- Listed or threatened species habitat

D. Public Involvement

This vegetation management plan provides a comprehensive and integrated framework which protects the environment and the health, safety and welfare of the Citizens of the Commonwealth. To help achieve this goal, public involvement is imperative to the development of a vegetation management plan. Established Company and regulatory procedures guarantee all interested parties ample opportunity for input and review.

Public involvement includes the comment periods on the VMP with state and locally scheduled meetings to review the plan and provide input during the review and approval process.

III. IDENTIFICATION OF TARGET VEGETATION

The primary objective of electric utility vegetation management is the selective control of those targeted plants capable of growing tall or dense enough to interfere with the safe operation of the electric facilities. This section identifies this "target vegetation" by plant species as related to its location on transmission or distribution rights-of-way.

A. Plant Species

For the purposes of electric utility vegetation control, plant species are generally divided into two groups, undesirable species capable of interfering with the conductors or access, and desirable species which normally cannot. It is the contractor's responsibility to be knowledgeable about and to instruct his crews in the identification of desirable and undesirable, targeted species and the various control techniques necessary for integrated vegetation management. Electric company personnel manage the contractors performing vegetation control, and ensure that contract conditions are met. These groups are defined below:

1. Undesirable Species

Undesirable species include trees, tall maturing or invasive shrubs, and vines. Trees are woody plants normally maturing at 20 feet or more in height, usually with a single trunk, un-branched for several feet above ground and with a definite crown. Tall maturing or invasive shrubs are woody plants maturing over 12 feet but less than 20 feet in height and presenting a generally bushy appearance because of their several erect spreading or prostrate stems. Undesirable tree species include, but are not limited to, poplar (*Populus spp.*), white pine (*Pinus strobus*) and red maple (*Acer rubrum*) which are capable of growing into the conductors. Tall growing or Invasive shrub species include, but are not limited to, sumac (*Rhus spp.*), speckled alder (*Alnus rugosa*), buckthorn (*Rhamnus spp.*) and multiflora rose (*Rosa multiflora*). Woody vines such as wild grape (*Vitis spp.*), Virginia creeper (*Parthenocissus quinquefolia*) and poison ivy (*Rhus radicans*) are also controlled when they risk electric reliability by climbing structures, poles and guy wires.

2. Desirable Species

Desirable species include low maturing shrubs, ferns, grasses, and herbs. Low maturing shrubs are woody plants normally maturing no taller than 12 feet in height and presenting a generally bushy appearance because of their several erect spreading or prostrate stems. Most shrubs such as mountainlaurel (*Kalmia latifolia*), highbush blueberry (*Vaccinium corymbosum*) and hazelnut (*Corylus americana*) usually cannot grow into the conductors and are normally preserved and encouraged to grow. Non-woody plant species such as ferns, grasses, herbs and wildflowers benefit from the reduced competition for space and are allowed to flourish.

The following is a partial list of the most common native shrub species that are normally preserved.

Hazelnut	Huckleberry
Gray Dogwood	Spicebush
Juniper SPP	Pinxterbloom Azalea
Viburnum SPP	Mountainlaurel
Sweetfern	Redosier Dogwood
Bayberry	Highbush Blueberry
Lowbush Blueberry	

IV. METHODS OF VEGETATION MANAGEMENT AND RATIONALE FOR USE

This section describes the intended methods of vegetation management and rationale for use, including vegetation control techniques, equipment proposed for use, timing and other control procedures. An integrated approach to vegetation management has been developed which minimizes the use of herbicides through a balanced mix of cultural practices, mechanical control, and a carefully planned program of chemical control. Commonly used control methods such as foliar applications and manual cutting that provide a low input approach to vegetation control are incorporated into an innovative and interdisciplinary plan. Above all else, a major commitment is made to the protection of human health and safety, and the prevention of unreasonable adverse effects on the environment. Vegetation maintenance is scheduled on a cyclical basis so that individual rights-of-way vegetation control is performed under a 4 to 5 year interval and managed to ensure the safe and reliable operation of the electrical system.

A. Hand-cutting

Description: Brush is mechanically cut using chain or brush saws or hand tools.

Uses: Used in inaccessible, residential, and some sensitive areas.

Benefits: Can be performed year-round low visual impact; highly selective.

Limitations: High cost, does not control root system, promotes aggressive re-sprouting

B. Mowing

Description: Brush is mechanically cut using a (large) machine with a cutting head attached to a large all-terrain rubber tired or tracked vehicle.

Uses: Used in areas accessible to large motorized vehicles, especially in areas of high density and/or tall undesirable stems.

Benefits: Can be performed year-round, excellent way to re-establish control of overgrown areas.

Limitations: Poor visual impact (debris and mangled roots/stems left), not good in rocky, hilly, residential, or wet areas, tends to be non-selective (cuts desirable weeds/shrubs/grasses as well as undesirable species), can have a negative impact to wildlife, especially during song bird nesting season and does not control root systems, promotes aggressive re-sprouting.

C. Cut stump herbicide

Description: A small amount of herbicide is applied directly to the cambium layer of freshly cut stumps. Applications may be made with a hand-held spray bottle, hand-operated sprayer, or a paint brush. Usually done in conjunction with manual or mechanical cutting.

Uses: Used in general and some sensitive areas (especially where aesthetics is a concern), where undesirable brush has been mechanically cut.

Benefits: Applications can be made year round, little or no spray drift, no visual impact (no brownout).

Limitations: Not effective in high density areas and where cut stumps are small or cannot be found.

D. Basal herbicide

Description: A small amount of herbicide and carrier is applied to lower 12" of individual stems. Applications are made with hand operated low pressure backpack equipment.

Uses: Used in general and some sensitive areas.

Benefits: Applications can be made year round if the root collar is exposed, little to no spray drift.

Limitations: Basal applications are generally inefficient in medium to high stem-density areas. Volatility may be a problem in summer heat.

E. Foliar herbicide

Description: Small amount of herbicide mixture is applied to leaves of individual, undesirable plants. Application is usually made with hand-pump or motorized "backpack" low-pressure sprayers. Since a smaller amount of mixture is used in the "low volume foliar" method than in the "high volume foliar" method, the mix contains a higher concentration of herbicide. However, an equal amount of the active ingredient is applied to the target plants.

Uses: Useful in general and some sensitive areas on individual targeted stems less than 12' in height, and where terrain precludes the use of heavy equipment.

Benefits: Efficient, effective method of selectively controlling individual plants as well as multi-stemmed shrub species and vines.

Limitations: Limited application season (apply when plants are in full leaf), weather dependent, efficiency is lost in areas with a high density of undesirable plants.

V. JUSTIFICATION OF HERBICIDE APPLICATIONS

The Company's Vegetation Management Plan accomplishes the overall goal of continuous and reliable electrical service at a reasonable cost to its customers while placing primary importance on health, safety and environmental protection. Herbicides used for rights-of-way vegetation control are regulated by the U.S. Environmental Protection Agency and registered for use in Massachusetts by the DAR and DEP. Approved herbicides are applied by contractors that are licensed and certified by the Commonwealth, and in accordance with herbicide label directions and precautions. In addition, Company policy requires compliance with all applicable federal and state laws and regulations.

This section compares the relative benefits of herbicide control with other methods and describes why herbicides are an essential part of an effective vegetation management program.

A. Regulation of Stem Density and Plant Composition

Selective herbicide application, where herbicides are applied directly to the individual stems of targeted plant species, provides significant advantages in decreasing the density of target vegetation and encourages the development of lower growing, native plant communities. A long-term reduction in the number of tree stems can be achieved by selectively treating only those undesirable species capable of interfering with the conductors and access. Herbicides are used which normally provide total control of both the above ground portion of target vegetation and the root system to prevent resprouting.

Compatible plant communities are those that pose no risk to the safe and reliable operation of the electric systems. These communities are developed by controlling growth of trees and tall-growing or invasive shrubs (i.e., multiflora rose, autumn olive and buckthorn), and encouraging desirable species to dominate the right-of-way. Reducing undesirable plant competition for space allows low maturing shrubs, grasses, ferns, wildflowers, and herbs to spread into those areas previously occupied by target vegetation. The resulting dense low growing plant cover inhibits the germination and development of tall growing tree seedlings back onto the right-of-way. These compatible plant communities are thereby established which have an increased desirable species component and decreased undesirable component. In this manner, selective herbicide treatments tend to minimize the use of herbicides by generally reducing the number of target stems requiring control and potentially extending the time interval between treatments since the fastest growing, tallest maturing target species are eliminated.

B. Wildlife Habitat

Selective herbicide applications significantly enhance wildlife habitat through the development of diverse, relatively stable plant communities. Selective use of herbicide develops an environment and edge habitat beneficial to a wide variety of wildlife species. Large and small mammals, songbirds, raptors and a multitude of other animals are known to use these rights-of-way for food, cover and natural corridors of travel.

Through the selective elimination of targeted plant species and the retention of the native, low-growing plants the resulting plant communities on rights-of-way provide optimal habitat benefits to a wide range of wildlife species including many listed or threatened plants, insects, migratory songbirds and raptors.

C. Economics

Economics refers to the costs of the various management techniques and the effectiveness of a particular method in controlling target species. Since effective control of target species is paramount for successful vegetation management programs, optimum control is that which is most cost effective over the long term.

A vegetation management plan based solely on cutting would be cost prohibitive. Hand cutting or mowing without the benefit of herbicides allows the root systems of cut-off sproutable stumps to remain alive. Dormant or adventitious buds located on the root or stumps quickly develop into sprouts, often during the same year of cutting. Instead of a single stem which existed prior to cutting, a cluster of sprouts soon becomes established. Since a developed root system is already present, the growth rate of the newly formed sprouts is much faster than the normal growth rate of the tree. In fact, dense sprouts approximately 7-10 feet tall have occurred during the first full growing season immediately following cutting.

A hand cutting or mowing program would require repeated reclearing of brush due to resprouts with a one-time cost of approximately 3 to 4 times that for one herbicide application based on Company experience. This cost multiple is compounded further in that cutting must be performed on a more frequent basis than selective herbicide treatments. While warranted under certain conditions (e.g., in restricted sensitive areas, when weather is not appropriate, and when woody vegetation is too tall to herbicide treat effectively), the high per acre cost of cutting, lack of sprout control, and the necessity for more frequent maintenance reduce the long term cost effectiveness of cutting without herbicide treatment.

D. Erosion Control

A well-established, low-growing plant cover as provided by selective herbicide use also serves to control erosion by holding soil against wind and water movement. Conversely, under certain site conditions, continued non-selective cutting without the benefit of herbicides can leave the ground bare and vulnerable to soil losses.

E. Noise and Air Pollution

Reliance on cutting methods would result in increased noise and air pollution as compared to herbicide control. Since crews have to return more frequently for cutting, noise pollution and exhaust from vehicles and brush cutting equipment are a normal consequence. Also, fuel consumption for equipment increases.

F. Social Benefits

A variety of social benefits may be attained by managing vegetation through selective herbicide control. Buffer zones may be left to screen the public's view of the right-of-way in that only those species capable of growing tall enough to contact the overhead conductors are removed while the dense shrub barrier remains intact.

As discussed in Section V.A, Regulation of Stem Density and Plant Composition, selective herbicide treatment tends to reduce the number of target stems requiring control. An integrated vegetation management program including selective control, normally results in less alteration of the existing plant community as compared to non-selective herbicide treatment or mowing. This generally decreases the use of herbicides and minimizes the potential for adverse effects on human health and the environment.

G. Traffic Safety and Snow Removal

Maintaining target vegetation in accordance with Company specifications, which includes the use of herbicides along roadside power lines, provides significant advantages in improving traffic safety. Roadways properly cleared of vegetation provides improved driver visibility by controlling the dense, rapid resprouting from cut stumps, and reduces the potential of fallen branches and trees which may cause accidents. Properly maintained roadside power lines also help provide a location for depositing plowed snow.

VI. IDENTIFICATION OF SENSITIVE AREAS AND CONTROL STRATEGIES PROPOSED FOR SENSITIVE AREAS

This section defines sensitive areas (No-Spray and Limited Spray areas) encountered along rights-of-way, provides references and sources for identifying sensitive areas, outlines the method used to identify sensitive areas, and lists the control strategies proposed for sensitive areas.

The DAR and DEP have developed a list of recommended herbicides for use in sensitive areas within rights-of-way. This list is available on the DAR website for use in sensitive areas within rights-of-way. These herbicides are characterized by their low toxicity, mobility, and persistence.

Following the restrictions in 333 CMR 11.04, treatment in the limited spray Sensitive Areas will be carried out using herbicides from the Sensitive Areas Materials List developed and administered jointly by the DAR Pesticide Bureau and DEP. These herbicides are characterized by their low; toxicity, mobility and persistence.

In 1991, following a study of the impacts of right-of-way vegetation management on wetlands (*Study of the impacts of Vegetation Management Techniques on Wetlands for Utility Rights-of-Way in the Commonwealth of Massachusetts* – June, 1989 and the *Study of the Fates of Herbicides in Wetlands on Electric Utility Rights-of-Way in Massachusetts Over the Short Term* – December, 1993), the DAR determined that integrated vegetation management, using herbicides recommended for sensitive areas does not pose an unreasonable adverse impact to wetlands. In addition, the DAR required a second study for the purpose of collecting data on the environmental fate of herbicides. In 1995, the DAR issued its final determination (Appendix D) that an integrated vegetation management program, incorporating the elements consisting of IVM practices, will “result in less impacts to wetlands than exclusive use of mechanical control methods”.

A. Definition of Sensitive Areas

Sensitive areas are defined in 333 CMR 11.02 as "any areas, within rights-of-way, including but not limited to the following, in which public health, environmental or agricultural concerns warrant special protection to further minimize risks of unreasonable adverse effects:

No Spray Areas:

- (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) ten 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 surfacewater source
- (d) a lateral distance of 100 feet for 400 feet upstream, on both sides of the river, of a ClassB Drinking Water Intake
- (e) 50 feet of any identified Private Well
- (g) ten feet of any Wetlands or Water Over Wetlands
- (f) ten feet of the mean annual high-water line of any river; and
- (i) ten feet of any Certified Vernal Pool.

Limited Spray Areas:

- (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 ten 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 ten 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; and
- (i) a distance of 100 feet of any Agricultural or Inhabited Area.

Sensitive Area Restriction Guide (333 CMR 11.04)

Sensitive Area	No Spray Areas	Limited Use Areas	Where Identified
Wetlands and Water Over Wetlands	Within 10 feet (unless provisions of 333 CMR 11.04(4)(c) are followed)	10 – 100 feet; 12 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps and identify on site
Certified Vernal Pool	Within 10 feet	10 feet to the outer boundary of any Certified Vernal Pool Habitat; 12 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps and identify on site
Public Ground Water Supply	Within 400 feet (Zone I)	Zone II or IWPA (Primary Recharge Area); 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps

Sensitive Area	No Spray Areas	Limited Use Areas	Where Identified
Public Surface Water Supply	Within 100 feet of any Class A public surface water source	100 feet to the outer boundary of the Zone A; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps
	Within 10 feet of any tributary or associated surface water body located outside of the Zone A	10 feet to the outer boundary of the Zone A; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	
	Within 100 feet of any tributary or associated surface water body located within the Zone A of a Class A public surface water source		
	Within a lateral distance of 100 feet for 400 feet upstream of any Class B Drinking Water Intake	Within a lateral distance of between 100 -200 feet for 400 feet upstream of intake; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	
Private Water Supply	Within 50 feet	50 – 100 feet; 24 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	In YOP well list and identify on site
Surface Waters	Within 10 feet from mean annual high-water line	10 feet from the mean annual high water line and the outer boundary of the Riverfront Area; 12 months must elapse between applications; Selective low pressure, using foliar techniques or basal or cut-stump applications	YOP Maps and identify on site
Agricultural and Inhabited Areas	N/A	0 – 100 feet 12 months must elapse between application; Selective low pressure, using foliar techniques or basal or cut-stump applications.	Identify on site

Sensitive Area	No Spray Areas	Limited Use Areas	Where Identified
State-listed Species Habitat	No application within habitat area except in accordance with a Yearly Operational Plan approved in writing by the Division of Fisheries and Wildlife		YOP Maps

B. Reference and Sources for Identifying Sensitive Areas

The following references and sources may identify the location of public ground water supplies, public surface water supplies, private drinking water supplies, and the general location of wetlands. Standing and flowing water, and agricultural and inhabited areas are readily identified in the field.

1. Massachusetts DEP Watershed Maps (scale 1:25,000) and/or digital data layers; delineates the perimeter of public watersheds and the location of public wells.
2. Massachusetts DEP Wetland Restriction Maps (scales usually 1:1,000); approximately 15% of the State has been mapped; available from DEP, Division of Wetlands and Waterways.
3. Municipal Maps and Records (scales vary).
4. Regional Planning Agencies' 208 Water Quality Survey Wetland Maps (scales vary); not all planning agencies have copies.
5. U.S. Army Corps of Engineers (USACOE) Wetland Maps (scales vary); prepared for specific COE projects.
6. U.S. Fish and Wildlife Service National Wetlands Inventory Maps (scales 1:24,000 and 1:25,000); available from University of Massachusetts at Amherst, Cartographic Information Research Services.
7. U.S. Geological Survey Topographic Maps (scale 1:24,000); identifies major wetland areas.
8. Natural Resource Conservation Service Maps (scales vary); available for most communities.
9. William McConnell Land Use Maps (scale 1:25,000); delineates wetlands using aerial photos; available from the University of Massachusetts at Amherst, Dept. of Forestry and Wildlife Management (caution: some forested swamps not included in wetland classification).
10. Wetlands Conservancy Program or UMass color infrared (1:22,000 scale) and black and white (1:5,000 scale) ortho-photographs.
11. Maps of Estimated Habitat of State Listed Species published by the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP).

C. Method for Identifying Sensitive Areas and Wetlands

The following procedure will be used to identify right-of-way sensitive areas:

1. The appropriate references and sources will be consulted to determine the location of public and private water supplies.
2. Public water supplies will be designated on YOP maps.
3. Prior to application, the location of these public and private water supplies will be identified in the field with the aid of the Yearly Operational Plan, by a "point person" in advance of the treating crew.
4. Prior to application, the treating crew will identify standing and flowing surface waters, and agricultural and habitated areas in the field except as provided by Section VI.C.7. below.
5. Appropriate distances will be measured from sensitive areas to identify no spray areas and limited use areas.
6. Public and private water supplies will be marked as specified in the Yearly Operational Plan. Sufficient distance will be maintained between the point person and treating crew to prevent any inadvertent application in sensitive areas. Application will cease in that area if adequate distance cannot be maintained.
7. The procedure used to identify wetlands when non-sensitive area herbicides are employed to control vegetation are as follows:
 - a. The appropriate references and sources will be consulted to determine the general locations of wetlands. Precise boundaries must be determined in the field.
 - b. Prior to application, individual(s) qualified to delineate wetlands will identify wetland boundaries based upon plant indicator species.
 - c. Wetland boundaries will be kept in permanent Company records indicating where 50% or more of the vegetation community consists of wetland plant species.
 - d. A "point person" in advance of the treating crew will measure appropriate distances from wetland boundaries to identify no spray areas and limited use areas. These areas will be marked as specified by the Yearly Operational Plan. Sufficient distance will be maintained between the "point person" and treating crew to prevent inadvertent application in the wetland. Application will cease in that area if adequate distance cannot be maintained.

D. Control Strategies for Sensitive Areas

The following vegetation control strategies shall be used for sensitive areas.

- a. A minimum of 24 months will elapse between herbicide applications in limited herbicide treatment zones of public ground water supplies, public surface water supplies, and private drinking water supplies.

- b. A minimum of 12 months will elapse between herbicide applications in limited herbicide treatment zones of surface waters, wetlands, and habitated and agricultural areas.
- c. No more than the minimum labeled rate of herbicide appropriate to the site, pest and application method will be applied in sensitive areas.
- d. Herbicides recommended for sensitive areas and guidelines for their use will be followed in accordance with the DAR's list of "Approved" herbicides for sensitive areas on rights-of-way.
- e. All other limitations placed on sensitive areas will be followed as provided by 333 CMR 11.04.
- f. Wetland Restrictions:
 - 1. An integrated Pest Management (IPM) system, also know as Integrated Vegetation Management (IVM), as described in the Vegetation Management Plan and Yearly Operation Plan is utilized in wetland areas.
 - 2. Herbicides may be applied by 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 foliar applications. Cut stump and basal applications shall be restricted, when practicable, to periods 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 DAR and DEP through 333 CMR 11.04(d).
 - 5. Only herbicides recommended by the DAR and DEP through CMR 11.04(d) may be used in sensitive areas.
 - 6. Herbicides may only be applied by hand operated equipment containing no more than 5 gallons of herbicide mixture.
 - 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 purpose 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.

E. Massachusetts Endangered Species Act

In accordance with regulations established under the Massachusetts Endangered Species Act (MESA), the Company submits their vegetation management plans to the Natural Heritage Endangered Species Program (NHESP) for review and comment.

321 CMR 10.14 allows for utilities to be exempt from the permit process for performing vegetation management activities in identified priority habitats provided that the management is performed in accordance with a vegetation management plan approved in writing by NHESP.

Plans are reviewed for areas where delineated priority habitats are noted and recommendations are provided on management practices to be employed that will reduce the potential for adverse impacts to the listed species. The Company reviews the recommendations and implements management practices that comply with the objectives of the NHESP.

Priority habitats are noted on project records and provided to contractors along with the recommended adjustments to the vegetation management practices. The Company provides field oversight of all work in these priority habitats to ensure full compliance with the stated objectives. Contractors are only informed of the priority habitat area locations and the required actions as provided by the Company to avoid damage to the state-listed species and/or their habitat.

VII. OPERATIONAL GUIDELINES FOR APPLICATORS

The Company's policy requires contracted applicators to comply with all applicable federal and state laws and regulations. That includes 333 CMR 11.00 Right-of-Way Management.

The product label is the permit under which the product can be marketed. The label is periodically updated and provides the most current information which is essential to the safe handling and application of the product. Use inconsistent with the labeling is punishable by fine and/or imprisonment.

This section provides a partial summary of operational guidelines as specified by federal and state training manuals, laws, and regulations applicable to right-of-way applicators. The best guideline in applying herbicides is for applicators to use their own awareness, good judgment and common sense.

A. Selective Application Techniques

Highly selective application techniques are used to apply diluted herbicide mixtures directly to target vegetation with precision. The basal techniques are used to apply small amounts of herbicides using sprayer wands held within inches of each individual stem. In the cut stump method herbicide is applied only to the residual stump left after mechanical cutting. The amount of herbicide used in the foliar technique is minimized by proper spray nozzle pressure, large droplet size, spray adjuvants, and applications directed at individual tall-growing plants.

B. Selective Herbicides

A variety of selective herbicides are used which affect certain groups of plants with little or no affect on others. Limited spectrum herbicides are used to meet the particular vegetation and site conditions on the right-of-way. Some herbicides control broadleaved species but have a limited affect on certain desirable grass species such as those found in lawns or some grain crops.

Adjuvants may be added to the herbicide mixture to help improve the performance of the active ingredient and reduce the chance of off-target drift.

Herbicides are normally mixed with a water or petroleum carrier and applied as a dilute mixture. In wetlands, either water or a refined petroleum product will be used as carriers. Fuel oil, jet fuel, and kerosene are not permitted for use as carriers in wetlands.

C. Long Term Timing of Treatment

Proper timing of selective herbicide applications is important to the long term planning of vegetation management. To insure reliability, vegetation maintenance is scheduled to preclude encroachment of target vegetation into the conductors.

With approximately 6,707 acres of transmission and 1,096 acres of bulk supply distribution rights-of-way, approximately one-fifth must be maintained each year to assure the integrity of the system. Approximately one-fourth of the Company's 3,514 pole miles of local distribution lines must be maintained each year. Although this relates to a normal five-year treatment interval for off-road rights-of-way and a normal four-year cycle for roadside lines, fixed application schedules are avoided by on-site determinations of present site conditions. An assessment of the right-of-way is conducted to document the vegetation conditions (including the height and density of desirable and undesirable species), and other site conditions (such as environmental and visual sensitive areas) to determine if vegetation maintenance should be advanced scheduled or delayed.

D. Seasonal and Daily Timing of Treatment

Application crews adhere to strict procedures governing the seasonal and daily timing of selective herbicide applications. They include:

1. Basal techniques are used only when stems are dry and clear to the root collar. These methods are ineffective and consequently not used when the lower stem is either wet or covered with snow or ice.
2. Stumps are not treated during periods of precipitation.
3. Foliar techniques are normally used between June and early September after leaves are fully developed and while the plant is actively growing.
4. Herbicides are not applied when the wind velocity is such that there is a high propensity to drift off target and during measurable precipitation.

E. Safety Precautions

The following general safety precautions shall be taken when handling and using herbicides:

1. **Transporting Herbicides**
 - a. Containers should be placed and secured so they do not tip over or bounce around, in an enclosed lockable compartment.
 - b. Do not transport food, feed, or people where herbicides are stored.
 - c. Department of Transportation regulations and appropriate state and local laws and regulations must be followed when transporting herbicides including the transportation of these materials across state lines.
2. **Protective Clothing**
 - a. Requirements for protective clothing and Personal Protective Equipment (PPE) are listed on the product label and shall be followed.
 - b. Follow all label precautions.
 - c. Where the label is not requiring special clothing or equipment all personnel shall at a minimum wear protective clothing, including a closely woven long-sleeved shirt, long pants, or coveralls, work boots, and socks.
3. **Exposure**
 - a. Do not work in spray, drift, or run-off unless thoroughly protected.
 - b. Wash thoroughly before eating, drinking, or smoking.
 - c. Work in pairs to help identify poison symptoms.
 - d. Keep unauthorized people and animals out of the treatment area while treating.
 - e. Use proper application rates.
4. **Personal Hygiene**
 - a. Immediately wash off any herbicide spilled on the body.
 - b. Change spray clothes daily.

- c. Keep spray clothes separate from other clothing.
 - d. Wash spray clothes thoroughly.
 - e. Take a shower at the end of each day.
5. Herbicide Poisoning
- a. Keep herbicides out of the reach of children.
 - b. Inform your doctor which herbicide you use.
 - c. A well-equipped first aid kit should be available at the work site in case of emergency.
 - d. If poisoned, call an ambulance or Massachusetts and Rhode Island Poison Information Center, (800) 222-1222 and administer proper first aid.

F. Filling and Mixing

Applicators are most often exposed to harmful levels of pesticides during filling and mixing operations since concentrated forms are handled. The following steps should be taken to avoid accidental exposure to the applicator or harm to the environment.

1. Follow all label directions.
2. Keep animals and unauthorized people out of the filling/mixing area.
3. Herbicide concentrates may not be handled, mixed, or loaded on a right-of-way within 100 feet of a sensitive area.
4. Wear protective clothes, rubber gloves, hat, respirator, and goggles or face shield as specified on the label.
5. Change clothes immediately if concentrates are splashed or spilled on clothing.
6. Keep plenty of soap and water at your disposal for cleanup.
7. When pouring herbicides, keep your head well above the opening and position yourself so winds do not carry the pesticide into your face or body.
8. Carefully measure herbicides.
9. Use anti-siphoning devices such as check valves to prevent back flow of water into the filling source.
10. Do not allow the sprayer to run over when filling.
11. Triple rinse empty containers and utilize the rinsate whenever possible.
12. When mixing together two or more products, make sure they are compatible.

G. Equipment Calibration

The rate of delivery for each application technique is based primarily on the proper coverage of those plant parts specific to the treatment (i.e. uniform surface wetting without run-off for the low volume basal technique). Proper rates of application depend upon the following parameters:

1. Proper herbicide mixture.
2. Proper distance between the sprayer and target plant.
3. Proper pump pressure.
4. Correct nozzle type and opening size.

All application equipment shall be kept in good working order. Leaking or faulty pumps, tanks, hoses, nozzles and fittings shall be repaired at once.

H. Weather

Applicators must give weather factors due consideration in their decision to conduct spray operations on any given day or to continue when weather conditions become unsuitable. Rain water not only washes herbicides from target vegetation and reduces its effectiveness, but the resulting runoff could pose harm to the environment. High wind speeds increase the chances for drift to non-target plants, sensitive areas and the applicator. For these reasons, foliar herbicide applications are not performed when the wind velocity is such that there is a high propensity to drift off target and/or during measurable precipitation (where the potential for herbicide run-off is high).

E. Disposal

Surplus herbicides and empty herbicide containers shall be disposed of as described on the herbicide label.

To reduce the potential for surplus herbicide mixtures, spray operations should be planned so excess mix is not left over at the end of the day.

F. Record Keeping

The Occupational Safety and Health Act (OSHA) of 1970 requires employers of eleven or more employees to maintain records and prepare periodic reports concerning work related deaths, injuries, and illnesses. In the Commonwealth of Massachusetts, record keeping is required of all certified commercial applicators and licensed applicators. Operational records must contain the following information (as specified in 333 CMR 10.16):

1. Place of application.
2. Date of application.
3. The brand or registered name of the pesticide.
4. The EPA registration number of the pesticide.
5. The amount of pesticide applied.
6. The purpose for which the pesticide was applied.
7. Method of application.

8. The persons certified or licensed by the DAR who participated in the planning and execution of the application.
9. Accidents or incidents resulting from use of a pesticide which caused pollution.
10. The amount of liability insurance carried and the name of the insurer.
11. Any illnesses or injuries caused by or suspected to have been caused by pesticides and reported to the applicator.

G. General For All Herbicides

1. Label Instructions - follow all label instructions and the following:
 - a. Designation of Approved Herbicide Mixture

Designation of herbicide (including manufacturer and brand name), carrier and mixture to be used will be provided by the Owner's Representative before the work is started.
 - b. Restriction of Herbicide Treatment Application Due to Precipitation

In the event of precipitation, herbicide treating shall cease, and shall not resume until stems and foliage are reasonably dry or when applications will not result in run-off of treated foliage.
 - c. Specifically as Applicable to Basal Applications

Treating shall be performed only when the stems are reasonably dry and clear down to the root collar. Treating shall not be performed if more than 6 inches of snow is covering the lower stem.
 - d. Specifically as Applicable to Stem-Foliar Applications:

Restriction of Application Due to Precipitation - In locations which are not sensitive areas, any treating done within label restricted periods before the start of precipitation shall be retreated.
 - e. Specifically as Applicable to Stump Treatment Applications:

Work Period - Do not apply during periods of precipitation.

VIII. ALTERNATIVE LAND USE PROVISIONS OR AGREEMENTS MINIMIZING THE NEED FOR HERBICIDES

This section describes the alternative land use options and agreements which minimize the need for herbicides on the Company's rights-of-way. The Company continuously evaluates alternative vegetation management methods. A brief description of these methods follows.

A. Land Use Provisions

A large portion of rights-of-way have no brush requiring control due to land usage. Herbicide treatment is not necessary where lawns, roadways, urban areas, industrial sites, and agricultural areas such as pastures, hayfields, and cornfields do not allow target species to interfere with the conductors or access.

B. Agreements

1. License Agreements

This is an agreement between the Company and another party (an individual, state or local government agency, or corporation), regarding property owned by the Company. A party may enter into an agreement with the Company (through a Company Representative) which allows them to use Company owned land for their purpose (e.g., commercial or agricultural use) in exchange for some agreed to compensation. Certain land uses preclude or reduce the need for brush control. License agreements are negotiated on a case-by-case basis via the Company's Real Estate Department.

2. Maintenance Agreements

These are agreements between the Company and another party, generally regarding ROW property owned or controlled by the other party for which the Company possesses easement rights. A party may enter into an agreement with the Company, to maintain brush along a ROW, in exchange for some agreed to consideration. Some current and/or historical examples are:

a. "Tolland" Brush Agreement (named for the town of Tolland, MA)

A municipality agrees to maintain brush under our lines. In exchange, the Company pays the municipality a dollar amount, calculated as the cost the Company would bear if allowed to maintain brush using herbicides.

b. Municipal Mower Agreement

A municipality (or group of municipalities) agrees to maintain brush under our lines using a tractor-mounted boom-type mower. In exchange, the Company contributes to the mower lease costs. Additionally, the municipality(ies) are able to mow brush wherever else they wish. The amount contributed toward the mower lease cost is based on the line-mileage maintained by the municipality(ies).

c. "Parker Road" Agreement

A party agrees to mow grass along the ROW to prevent re-invasion of undesirable species. In exchange, the Company agrees to initially establish the grass cover on the ROW. (This is generally accomplished by eliminating existing brush, grubbing or tilling the soil, and "hydro-seeding" the area with the desired seed mix.)

d. "In-Lieu-Of" Agreement

A party agrees to maintain the brush on (their) ROW property. In exchange, the Company agrees not to use herbicides along the property.

e. "Additional Cost" Agreement

The Company agrees to maintain the brush along the ROW property without herbicides. The other party agrees to pay the Company the additional cost of this maintenance program, above what it would have cost to maintain the brush using herbicides.

Maintenance agreements may require Company indemnification. Generally there is a formal agreement, letter of intent, or contract drawn up, including specifications. Agreements are negotiated on a case-by-case basis.

Historically, maintenance agreements have had various results, from total failure, to completely successful. The Company will continue to negotiate agreements in good faith, and will continue to pursue innovative agreements.

IX. REMEDIAL PLAN TO ADDRESS SPILLS AND RELATED ACCIDENTS

A. Pesticide Spills

This remedial plan is offered as a guide to proper procedures for addressing pesticide accidents. Since every incident is different, applicators must weigh factors specific to the situation and use their own judgment to decide the appropriate course of action. Because applicators normally carry only small amounts of herbicides, the potential for serious accidents is relatively small.

Federal and state statutes establish emergency response procedures that must be followed by the companies and their contractors in the event of a spill or related accident. Under the Federal Environmental Pesticide Control Act, it is the applicators legal responsibility to clean up pesticide spills resulting from their use and handling of the product. Applicators are liable for damages, subject to penalties, and obligated to clean up and decontaminate areas resulting from pesticide spills.

The Farm Chemical Handbook (published by Meister Publishing Co., Willoughby, Ohio), U.S. Department of Transportation "1987 Emergency Response Guidebook" (available from UNZ and Company, Jersey City, New Jersey), herbicide labels, and material safety data sheets provide reference information for the chemicals being used. Application crews shall possess equipment for emergency action including sand or other absorptive material, broom, shovel, and heavy duty plastic bags or other leak-proof sealable container.

B. Hazardous Material Spills

The Comprehensive Environmental Response, Compensation, and Liability Act 1980 (CERCLA) 42 U.S.C. §9601 et. seq., and the Federal Water Pollution Control Act (CWA) 33 U.S.C. §1251 et. seq. are aimed at eliminating the accidental discharge of oil and hazardous substances into the environment, providing for the cleanup of such substances, and establishing responsibility for costs of cleanup. CERCLA and CWA are implemented by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) 40 CFR §300 et. seq.

Massachusetts General Laws Chapter 21E, the Massachusetts Oil and Hazardous Material Release Prevention and Response Act, Section 3 authorizes the Massachusetts Department of Environmental Protection (DEP) to act to secure the benefits of the CWA and CERCLA to the Commonwealth by promulgating and enforcing a Massachusetts Contingency Plan to "comport with and complement" the National Contingency Plan. The Massachusetts Contingency Plan, 310 CMR 40.000, establishes standards and procedures for the discovery of discharges, notification of DEP, assessment of the problem, and implementation of appropriate remedial response actions, as set forth in 310 CMR 40.500.

A. Emergency Contacts

The following phone numbers may be dialed for emergency assistance:

ChemTrec	(800) 424-9300	Chemical Industry Emergency Response System
Mass. Pesticide Bureau	(617) 626-1781	For Pesticide Spills, Fire, and Related Accidents
Mass. DEP	(888) 304-1133	For Emergencies Involving Reportable Quantities of Hazardous Materials
BASF Company	(800) 454-2673	For Medical Emergencies Involving Arsenal Herbicide
DowAgroSciences	(800) 992-5994	For Emergencies Involving Dow Products
Du Pont	(800) 441-3637	For Medical Emergencies Involving Du Pont Products
Novartis	(800) 267-6351	For Emergencies Involving Vanquish
Mass. & R.I. Poison Information Center	(800) 222-1222	For Medical Emergencies Involving Pesticides

B. Emergency Action

If spills are noticed immediately, most of the herbicide can be removed by shoveling off about one inch of treated soil. If spills are noticed after rain, the top 4 to 6 inches of soil should be removed. Activated charcoal can be applied at the rate of seven pounds per 1,000 square feet of ground surface area and incorporated into the soil to adsorb any residual herbicide and make it unavailable for plants.

1. Major Spills and Related Accidents

For the purposes of this VMP, major spills involve reportable quantities of hazardous materials as defined by the DEP 310 CMR 40.000. Related accidents include fire, poisoning, and automobile accidents.

- a. Administer proper first aid and call an ambulance and/or Massachusetts Poison Information Center in cases involving injury or poisoning.
- b. Call the police and/or fire department in cases involving automobile accidents or fire.
- c. Avoid breathing fumes of burning herbicides.
- d. Put out all sources of fire. Do not light flares, cigarettes, etc. which can ignite certain herbicides.
- e. If possible, control the spill by stopping the leak or source of spill.
- f. Confine the spread of liquids with a dike composed of soil or other absorptive materials.
- g. Call ChemTrec, Massachusetts Pesticide Bureau, or chemical manufacturer for assistance if unable to handle the spill or the material is unfamiliar.
- h. Notify the DEP if water bodies are contaminated, and for releases or threatened releases of reportable quantities of hazardous materials or oil. Notify the appropriate municipal official as specified in the YOP.
- i. Clean up spill.
 - 1) If the spill occurs in a public location, isolate the spill area and deny unauthorized entry until cleanup is complete.
 - 2) Absorb spilled liquids with sand, adsorptive clay, spill control gel, vermiculite, pet litter, sawdust or other absorptive material. Wear proper protective clothing and equipment.
 - 3) Sweep or shovel contaminated absorbent into a leak-proof, sealable container for later disposal.
 - 4) Dry herbicides, such as dusts, granules and pellets can be directly swept or shoveled into leak-proof sealable containers without absorptive materials.
 - 5) Neutralize contaminated area with hydrated lime, sodium hypochlorite (bleach), or soapy water. Never mix bleach and ammonia base products or a poisonous gas will result.

- 6) Dispose of contaminated material at an approved location.

2. Minor Spills

Minor spills involve less than reportable quantities of hazardous materials.

- a. In case of contact with herbicides, wash with plenty of soap and water. Administer proper first aid and see a doctor if necessary.
- b. Change clothing which has absorbed herbicides.
- c. Clean up spill.
 - 1) If the spill occurs in a public location, isolate the spill area and deny unauthorized entry until cleanup is complete.
 - 2) Absorb spilled liquids with sand, absorptive clay, spill control gel, vermiculite, pet litter, sawdust, or other absorptive material. Wear proper protective clothing and equipment.
 - 3) Sweep or shovel contaminated absorbent into a leak-proof, sealable container for later disposal.
 - 4) Dry herbicides, such as dusts, granulars, and pellets can be directly swept or shoveled into leak-proof sealable containers without absorptive materials.
 - 5) Neutralize contaminated area with hydrated lime, sodium hypochlorite (bleach), or soapy water. Never mix bleach and ammonia base products or a poisonous gas will result.
 - 6) Dispose of contaminated material at an approved location.

X. IDENTIFICATION AND QUALIFICATIONS OF INDIVIDUALS DEVELOPING AND SUBMITTING PLAN

The following individual is responsible for developing and submitting this VMP.
Address responses to:

Anthony W. Johnson, III
Manager – Transmission Vegetation Management
Northeast Utilities System
P.O. Box 270
Hartford, Connecticut 06141-0270

Tel. (860) 665-3858
E-mail: johnsaw@nu.com

Mr. Johnson is currently the Manager for the transmission vegetation management section which is currently part of the Northeast Utilities Service Company. He joined the Company in 1980 after receiving a Bachelor of Science in Agronomy and a Bachelor of Arts in Geography from the University of Connecticut in Storrs, Connecticut. He has been involved with the rights-of-way vegetation management programs at Northeast Utilities for over 28 years. He holds Supervisory Pesticide Certifications in rights-of-way in Connecticut and Massachusetts. He is the past President of the Environmental Industry Council of Connecticut and a member of the Steering Committee for the Seacoast Land Trust in Portsmouth, New Hampshire as well as a member of the Invasive Plants Working Group in Connecticut. He is also a Professional Soil Scientist with the Soil Science Society of Southern New England. His responsibilities include the management and oversight of all vegetation control projects and contracts on the NU system which covers the transmission system from the south coast of Connecticut through the western and eastern areas of Massachusetts as well as a large portion of New Hampshire up to the Canadian border.

APPENDIX A

LETTER FORMAT TO BE USED WHEN LANDOWNER AGREES TO MAINTAIN VEGETATION WITHIN THE RIGHT-OF-WAY IN LIEU OF HERBICIDE APPLICATIONS BY THE UTILITY

Dear _____:
(Landowner(s))

This letter agreement ("Agreement") between _____ ("you" or "Landowner") and Northeast Utilities Service Company, as agent for The Western Massachusetts Electric Company, (which shall be referred to as the "Utility") confirms our understanding concerning the maintenance of certain woody vegetation within the transmission line easement ("Right of Way") owned by Utility on your property in the Town of _____, _____.

Each Utility shall use this Agreement for purposes of ensuring the maintenance of Rights of Way within its service territory. Only the Utility whose service territory includes Landowner's property upon which the Right of Way is located shall be bound by this Agreement with Landowner and responsible to Landowner. The usage of this Agreement by such Utility shall not create any obligation or liability whatsoever of the other Utilities to Landowner. Notwithstanding any provision in this Agreement to the contrary, the Utilities shall not be jointly and severally liable for such Utility's obligations hereunder.

Proper maintenance of Utility's transmission lines and structures, including keeping the land within the Right of Way free of non-compatible woody vegetation, is essential for safe and reliable electric service. The Right of Way allows Utility to control trees, invasive shrubs, and vegetation within the Right of Way property in order to keep lines, structures and access to these facilities free and clear of potential interference. Normally, all trees, invasive shrubs, and vines in contact with structures are removed from the Right of Way. You have requested that the utility not use herbicides on your property and have agreed to maintain the vegetation within the right-of-way in accordance with our maintenance requirements. Utility is willing to allow this, but only on the terms and conditions set forth in this letter.

For purposes of this Agreement, "maintain" shall mean trim and keep trimmed, cut, clear and remove, by mechanical means or otherwise, trees or limbs and branches thereof, underbrush and other growth, any parts of which are within the limits of the Right of Way or on adjoining land of yours and which may interfere with the exercise of any of Utility's rights under the Right of Way or is otherwise essential for safe and reliable electric service, all in compliance with the terms of this Agreement, including without limitation the Conditions and the maximum heights set forth in this Agreement.

The woody vegetation that you have agreed to maintain includes all tree species that are capable of growing tall enough to contact the overhead conductors (Trees"). You agree to keep the right-of-way area clear of this incompatible vegetation in accordance with the standards set forth in the enclosed Transmission Easement Right of Way Conditions to be Met in Lieu of Herbicide Applications ("Conditions"), which are attached hereto as Exhibit A and incorporated by reference.

If you maintain the vegetation within the right-of-way in a manner satisfactory to Utility in its sole discretion, it should not be necessary for Utility under normal operating conditions to perform maintenance utilizing herbicides. However, if at any time, you do not maintain the right-of-way in accordance with the Agreement, or should Utility determine that circumstances relating to the operation or maintenance of the Right of Way, or access to Utility's facilities warrant, Utility may, in its sole discretion and without obligation, elect to perform the standard maintenance of the right-of-way as authorized by our easement. In the event that you do not comply with the obligations of maintenance set forth in this letter and fail to perform such obligations within thirty (30) days of written notice to that effect from Utility to you, or in the event of an emergency condition as set forth above, then and in either of such events Utility may perform the maintenance of the property in accordance with the easement rights.

In an emergency condition as set forth below, Utility retains and reserves the right, to maintain or remove interfering vegetation, in its sole discretion. An emergency condition is a condition that Utility reasonably determines constitutes a substantial risk of causing bodily injury or damage to property or facilities in less than thirty (30) days after its discovery. If Utility determines that maintenance or removal is required, Utility shall provide a written notice of Utility's intent to undertake whatever measures Utility deems necessary. In the case of emergency condition, Utility shall use reasonable efforts to contact you by telephone to inform you of the emergency measures to be undertaken by Utility or, if time does not permit advance notice, to inform you of the measures actually taken by Utility.

This Agreement will remain in effect only for you, the Landowner listed on this Agreement and you may not assign or otherwise transfer this Agreement. Property transfers will require the new owner to secure a similar Agreement in order for the land owner maintenance of the right-of-way to remain. Utility would have to evaluate any requests by subsequent owners of the property for similar agreements on a case-by-case basis and would have sole discretion of whether to enter into such Agreements with subsequent owners.

In the event that any provision of the Agreement is deemed invalid or unenforceable, it shall be modified to the extent necessary to make it valid and enforceable. The remaining provisions of the Agreement shall remain fully enforceable notwithstanding the unenforceability of any individual provision.

Utility may terminate this Agreement in its sole discretion upon not less than ____ days prior written notice to you, except in the case of an emergency condition, in which case it may terminate this Agreement without prior written notice.

WARNING: THE TRANSMISSION LINES LOCATED IN THE EASEMENT CARRY HIGH VOLTAGE ELECTRIC CURRENT. AS A SAFETY PRECAUTION, YOU MUST NOT CUT TREES, BRUSH OR OTHER VEGETATION THAT ARE WITHIN FIFTEEN (15) FEET OF THE OVERHEAD CONDUCTORS. CONTACT WITH THESE LINES MAY CAUSE SERIOUS INJURY OR DEATH. YOU AGREE THAT YOU WILL HAVE TRIMMING, CUTTING OR OTHER MAINTENANCE PERFORMED ONLY BY QUALIFIED LINE CLEARANCE TREE-TRIMMING COMPANIES EXPERIENCED IN TREE-CUTTING OR TRIMMING IN ELECTRIC TRANSMISSION RIGHTS OF WAY AND IN ACCORDANCE WITH ALL SAFETY REQUIREMENTS LISTED UNDER OSHA 1910.269 AND ANSI Z-133 STANDARDS.

LANDOWNER HAS READ AND UNDERSTANDS THIS WAIVER AND HAS BEEN FULLY INFORMED OF AND ACKNOWLEDGES, ASSUMES AND ACCEPTS THE RISKS INHERENT IN MAINTAINING VEGETATION NEAR TRANSMISSION OR DISTRIBUTION LINES. AS A MATERIAL CONSIDERATION FOR UTILITY TO CONSENT TO ENTER INTO THIS AGREEMENT, LANDOWNER HEREBY VOLUNTARILY ASSUMES THE RISK OF INJURY, ACCIDENT, DEATH, LOSS, COST OR DAMAGE TO LANDOWNER'S PERSON OR PROPERTY WHICH MIGHT ARISE FROM MAINTAINING SUCH TREES AND LANDOWNER RELEASES UTILITY FROM ANY AND ALL CLAIMS AND LIABILITIES IN CONNECTION WITH OR ARISING OUT OF THIS AGREEMENT

In addition, as a material consideration for Utility to consent to enter into this Agreement, you agree to indemnify Utility, its parents, affiliates, and subsidiaries and their respective directors, trustees, officers, employees, agents, contractors and subcontractors and to defend and hold them harmless from any and all costs, claims, lawsuits, liability or expense arising from or related to any activities conducted by you, your agents or contractors in maintaining trees and other vegetation in or adjacent to the Right of Way pursuant to this Agreement.

Any controversy or claim arising out of or relating to this Agreement or breach thereof which cannot be resolved by mutual agreement shall be settled by arbitration in accordance with the rules of the American Arbitration Association and judgment upon the award rendered by the arbitrator(s) may be entered in any court having jurisdiction. Any such arbitration proceeding shall take place in the state of Connecticut.

A Utility representative will make a determination now as to whether Utility will perform any trimming or cutting currently required on vegetation that is deemed to be too close to the conductors. After that time, you will be responsible for ensuring that the vegetation is maintained in compliance with the terms and condition of this Agreement.

If this letter correctly states our Agreement on this matter, please sign it on the lines after “Agreed and Accepted” in the third page of this letter and return it to Utility in the enclosed pre-addressed envelope. If you do not sign and return a fully executed copy of this letter within fifteen (15) days of the date of this letter, there will be no Agreement on these matters and Utility will exercise all of its rights under its recorded easement without regard to the matters in this letter.

Thank you.

Sincerely,
Utility Representative

[INSERT ADDRESS]

Accepted and Agreed to by Landowner:

Name: _____ Date: _____

Name: _____ Date: _____

(If property is owned by more than one person, all owners must sign.)

APPENDIX A (Continued)

TRANSMISSION EASEMENT RIGHT OF WAY CONDITIONS TO BE MET IN LIEU OF HERBICIDE USE

A. The Right of Way shall be cleared and kept clear at all times of live trees, shrubs, or other woody vegetation as follows:

1. Established access routes within the Right of Way, areas around pole or tower structures and guying anchors shall be clear of all woody tree and brush species.
2. Low growing shrubs (e.g. lowbush blueberry) may remain as well as grasses and forbs (e.g. herbs, ferns and wildflowers).
3. Access routes shall be maintained to a width of 14 feet.
4. Structure areas shall be maintained to a distance of 10 feet outward from each structure.
5. Plantings may be placed outside of the 10-foot limit around structures, but plantings may only be placed on two sides (two sides must be kept open and free of obstructions for maintenance needs).
6. Anchor guys shall be maintained to a distance of 5 feet around each anchor.
7. Fences shall include a gate to allow continuous access within and along the Right of Way.

B. All tall growing tree species shall be removed from the right-of-way. All low growing trees (less than 15 feet at maturity) or shrubs to remain within the Right of Way shall be maintained, trimmed or pruned, so that they will not grow tall enough to potentially contact the overhead conductors.

Because of differences in tree species, topography, line construction, height of the overhead lines and the location of the vegetation within the Right of Way relative to the overhead lines, the maximum heights for the desirable trees, shrubs, or other vegetation to remain will be dictated by Utility, in its sole discretion.

C. All cut-off brush, limbs and branches may be piled by the landowner within the limits of the Right of Way. However, all such debris shall be piled in locations that are not directly under the conductors or along any existing access routes or within the cleared limits of the structures and anchor guys. A Utility Representative may also identify other areas where debris may not be piled.

If the debris is to be chipped, the landowner may spread the chips anywhere within the Right of Way limits, as long as chips do not exceed a depth of three inches.

D. The landowner shall identify with visible markings the boundaries of the landowner's property within the Right of Way.

(Rev. 11/03/2010)

APPENDIX A (Continued)

LETTER FORMAT TO BE SENT TO LANDOWNER WHO OBJECT TO NU'S HERBICIDE USE AND AGREE TO KEEP CLEAR NU'S RIGHTS-OF-WAY EASEMENTS ON THEIR PROPERTY

Dear _____:
(Landowner)

This letter will confirm our conversation on _____(date)_____ concerning the control of trees, brush and/or vines ("woody vegetation") within the easement right-of-way on the WMECO _____ distribution right-of-way on your property in the town of _____, (State).

If this letter correctly states our agreement on this matter, please sign it on the line after "Agreed" in the margin below and return it in the enclosed pre-addressed envelope.

Proper maintenance of our transmission lines and structures, including keeping the lines free from contact with woody vegetation, is essential for safe and reliable electric service. WMECO has been granted an easement on your property that allows us to control selected woody vegetation within the right-of-way in order to keep our lines, structures and access to these facilities free and clear of potentially interfering vegetation. The most effective means of controlling this vegetation is through the prudent use of herbicides. Because you have chosen not to allow the continued use of herbicides on your property for this purpose, you have agreed instead to cut and keep cut the woody vegetation within the right-of-way.

The woody vegetation that you have agreed to control includes all trees and shrub species that are capable of growing tall enough to contact the overhead conductors. It also includes all woody vegetation that is capable of interfering with the access areas between and around all poles and structures. You have agreed to keep such woody vegetation cut and cleared in accordance with the standards set forth in the enclosed Distribution Easement Right-of-Way Conditions to be Met in Lieu of Herbicide Treatment ("Conditions").

If the right-of-way is cut and cleared in a manner satisfactory to WMECO by _____(date)_____ and continues to remain cleared thereafter, it will not be necessary for us to perform additional maintenance using herbicides on the right-of-way. However, if after the stated date the vegetation remains uncontrolled and it is determined that the right-of-way does not meet the standards set forth in the "Conditions", we will perform the necessary maintenance using any method deemed appropriate, including the use of herbicides, as allowed by our easement and in accordance with all applicable federal and state laws and regulations.

WARNING: The distribution lines located in the right-of-way carry live electric current. As a safety precaution, you must not cut trees, brush or vines that are in contact with or are within close proximity to the overhead conductors. Contact with these lines may cause serious injury or death. The WMECO Representative will make a determination on whether or not the company will perform any trimming or cutting that is required on vegetation that is deemed to be too close to the conductors. After that, the property owner or his contractor will be responsible for ensuring that vegetation remains free and clear in accordance with the "Conditions" enclosed.

Sincerely,
NU Representative

Agreed: _____
(Landowner)

Print Name: _____

Date: _____

APPENDIX A (Continued)

MOWER AGREEMENT

Date

TOWN

Department of Public Works

Attn: DPW HEAD

ADDRESS

XXXXXXXXXXXX, MA

RE: Municipal Brush Control Program

Dear Mr. XXXXXXXX

Western Massachusetts Electric Company (“WMECO”) and the towns of XXX, XXX, XXXX, XXXX, XXXXX, and XXXXX, Massachusetts (the “area towns”) have discussed an arrangement by which WMECO will assist the efforts of the area towns to cut brush along the public streets in said towns. WMECO and the area towns recognize that from time to time it is necessary to cut brush along these public roads, to maintain a safe and visually acceptable roadway and to prevent the potential contact of brush with WMECO’s electric distribution lines. These WMECO lines are specified in paragraph 1, below. In support of the area towns, WMECO is willing to make an annual contribution for a brush control program in the amount of (\$XX,XXX) on the following terms and conditions:

1. The Town of XXXXXXXX shall lease or otherwise obtain a brush mower (the “equipment”) suitable for cutting and trimming brush and other vegetation along the town maintained roads of the area towns. The equipment shall be made available by the Town of XXXXXXXX to each of the area towns at least once a year. Each area town shall cut brush around and beneath all WMECO lines annually. The equipment may also be used to cut brush along portions of town maintained roads where there are no WMECO lines. Maps showing the location of existing WMECO lines in the area towns are available upon request from the WMECO Arborist (Calvin Layton). Attached as Exhibit 1 are specifications of the miles of pole lines located in each town. WMECO will update this information as necessary. Brush located beneath the WMECO lines shall be cut to WMECO specifications, which is attached as Exhibit 2.
2. The area towns shall make a good faith effort to cut all brush within reach of the equipment per the WMECO specifications (Exhibit 2). If brush is out of reach of the mower (i.e. on top of an outcropping/ledge, too far off road), it need not be (hand) cut by the town.

-continued-

3. The Town of XXXXXXXX shall notify Calvin Layton of WMECO of the proposed usage schedule of the equipment in the area towns. Each town shall notify Calvin Layton (telephone 413-787-1001) when the mower is leaving their town and moving to another.
4. On or about May 1st, WMECO will make an annual contribution (gift) of \$XX,XXX to the Town of XXXXXXXX in support of this brush control program for a period of five (5) years. WMECO's agreement to make this annual contribution is conditioned upon the performance of each of the area towns in accordance with the terms and conditions of this letter. WMECO may, at its option, cancel this agreement upon sixty (60) days written notice to the Town of XXXXXXXX and cease annual contributions if any one or more of the area towns fail(s) to cut or trim brush beneath the WMECO lines as provided herein and fail(s) to cure said non-performance within said sixty (60) day period. In the case of non-performance, the area towns agree that any portion of WMECO's \$ XX,XXX contribution for the current year which can be recouped from the leasing company will be returned to WMECO.

In addition, WMECO shall also have the right to cancel this agreement for reasons other than non-performance, as long as WMECO provides 60 days written notice to the said area towns and reimburses the Town of XXXXXXXX for any charges incurred to terminate the equipment lease.

5. Except as provided in paragraph 4, above, WMECO shall not be responsible for any costs associated with the equipment, including but not limited to lease payments, maintenance costs and/or insurance. In addition, the equipment shall be used at the sole risk of the area towns, and WMECO shall not incur any liability in connection with the use thereof.
6. Additional municipalities may be added to this agreement at the option of the parties as long as the addition is agreed to in writing by all municipalities participating in the program and WMECO, and provided said additional municipalities agree to and are bound by the terms herein.

Please indicate your acceptance of these terms and conditions, and the acceptance by the other area towns, by executing a copy of this letter and returning it to the undersigned. This agreement will become effective upon WMECO's receipt of this letter executed by all the parties listed below, but will not begin before June 1st, 2013

-continued-

WESTERN MASSACHUSETTS ELECTRIC COMPANY

By: _____
Its Director of Operations Support and Engineering Compliance

Agreed and accepted by:

Town of XXXXXXXXX (lead town)

By _____

Its _____

Print _____

Address _____

Date: _____

Town of XXXXXXXXXX

By _____

Its _____

Print _____

Address _____

Date: _____

Town of XXXXXXXXXX

By _____

Its _____

Print _____

Address _____

Date: _____

Town of XXXXXXXX

By _____

Its _____

Print _____

Address _____

Date: _____

Town of XXXXXX

By _____

Its _____

Print _____

Address _____

Date: _____

Exhibit 1

Miles of Pole Line by Town

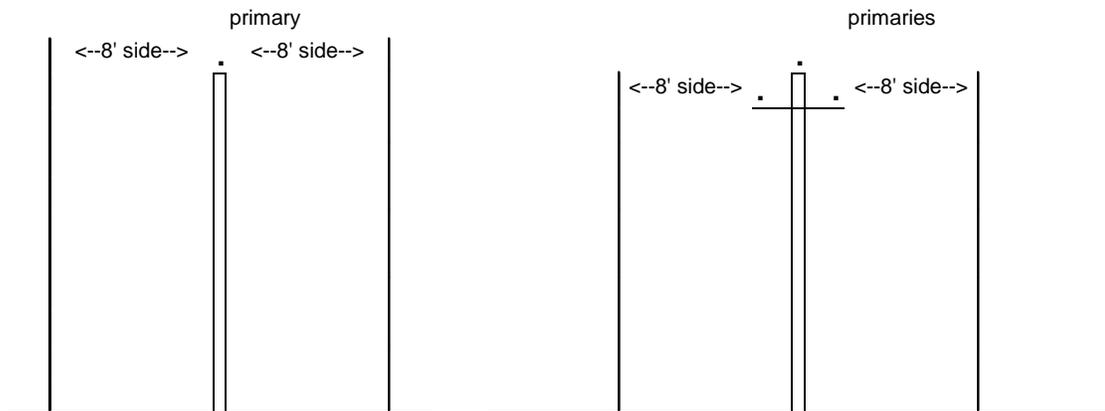
<u>Town</u>	<u>approximate pole line miles, roadside</u>
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Brush Specifications

The width of the brush removal area shall be 8 feet each side of the outermost conductor.

All tree stems less than or equal to 4 inches DBH (diameter breast height) shall be considered brush. Brush shall not be trimmed, but rather cut at or near ground level.

horizontal brush clearance zones for single and three phase primary conductors:



APPENDIX D

333 CMR 11:00 – Rights-of-Way Regulations

333 CMR: PESTICIDE BOARD

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.

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.

333 CMR: PESTICIDE BOARD

11.02: continued

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. and 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. and 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 ½- 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.

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 ten 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 ten 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; and
- (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) ten 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) ten feet of any Wetlands or Water Over Wetlands;
- (h) ten feet of the mean annual high-water line of any river; and
- (i) ten 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 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 Water Supplier, as defined at 310 CMR 22.02(1), any person who owns or operates a public water supply system.

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.

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. 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.

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

- (a) Any bank,
any freshwater wetland,
any coastal wetland,
any beach,
any dune,
any flat
any marsh,
or any swamp;
bordering
on
the ocean
any estuary
any creek
any river
any stream
any pond
or any lake
- (b) Land under any of the water bodies listed in 333 CMR 11.02: Wetlands(a); and
- (c) Land subject to tidal action.

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) requires 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.
- (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-ofway in such a manner that results in drift to any area within ten 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 and 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 ten 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 ten 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(3)(a) and (3)(b), 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 ten feet of a Wetland or Water Over a Wetland, within ten feet of the mean annual high-water line of any River, or within ten feet of any Certified Vernal Pool.
 - (b) No herbicide shall be applied on or within a distance of between ten feet and 100 feet of any Wetland or Water Over a Wetland, within a distance of ten feet from the mean annual high-water line of any River and the outer boundary of any Riverfront Area, or within a distance of ten 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) and (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 ten 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 ten 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 ten 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:

- (a) A minimum of 12 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.

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 the Department of Environmental Protection regulations at 310 CMR 10.03(6)(b) 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 333 CMR 11.05(4).
- (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;
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 in 333 CMR 11.05 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 in 333 CMR 11.05(4) 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 Environmental Protection Agency (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.

(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 in 333 CMR 11.06(4) 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 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(1) is required.

(3) At least 48 hours prior to the application referred to in 333 CMR 11.07(1), 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 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 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: Right-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 M.G.L. c. 30A.

11.10: Penalties

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. 132B, § 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 a representative, respectively, from 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.

REGULATORY AUTHORITY
333 CMR 11.00: M.G.L. c. 132B.
333 CMR: PESTICIDE BOARD

APPENDIX C



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

MARGO 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.

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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