The Commonwealth of Massachusetts
Department of Food and Agriculture
Leverett Saltonstall Building, Government Center
100 Cambridge Street, Boston 02202

DEQE/DFA COOPERATIVE AGREEMENT RELATIVE TO SECTION 4(1)(E) OF 333 CMR 11.00 RIGHT OF WAY MANAGEMENT REGULATIONS

Authority: Pursuant to the provisions of M.G.L. c. 132B §5 and M.G.L. c. 21A §2, the Department of Food and Agriculture (DFA) and the Department of Environmental Quality Engineering (DEQE) enter into this cooperative agreement for the purpose set forth below.

Purpose: The purpose of this Cooperative Agreement is to establish criteria and procedures for the DFA and DEQE to agree upon the suitability of registered herbicides for use within sensitive areas as set forth in 333 CMR 11.02 and to agree upon a listing of recommended herbicides, hereinafter referred to as "the List", that may be applied on rights of way excepting (f) when such agricultural or habitated areas do not fall in any category identified in (a) through (e.) Such list, guidelines and procedures will be subject to review and comment by the Department of Public Health provided that such comments are provided to the Department within a reasonable time.

The DFA and DEQE recognize that scientific review is a dynamic process and the procedure as herein described may be subject to amendments as needed.

Procedures and Review Process

1. Prior to the initial year of an applicant's, as defined in 333 CMR 11.02, intention to apply herbicides pursuant to the provisions of 333 CMR 11.04 the DFA will contact each applicant having control over a right of way and request they identify to the Pesticide Bureau Chief herbicides they wish to be reviewed by the terms of this Cooperative Agreement. In subsequent years of implementation, the herbicides considered for review by DEQE and DFA will be those on the List, unless an applicant requests review of other herbicides.

2. Herbicides submitted to the Bureau Chief or from the List will be reviewed cooperatively by DEQE and DFA.

As set forth in Appendices A and B, a scientific review of each herbicide will include, but not be limited to, a review of the physical and chemical characteristics, EPA registration standard or special review status, and a review of secondary and primary data sources. DEQE and DFA will cooperate to assemble the available data. If more information is necessary to evaluate a herbicide the burden to supply such information will be placed on the applicant before further action by either department. Such-data are required where DEQE or DFA determine that there may be an adverse effect on non-target plant and animal species or the environment within sensitive areas.

A Final Document will be prepared jointly by DEQE and DFA and will include the List of recommended herbicides with guidelines for use in sensitive areas and DFA approved herbicide fact sheets (333 CMR 11.06(2(h)) summarizing pertinent literature. Documentation and studies used to evaluate the herbicides will be kept on file at DFA.

Application of herbicides not recommended through this cooperative agreement may be subject to the provisions of M.G.L. c. 131 Section 40 and M.G.L. c 21A Section 2 and regulations promulgated thereunder.

When either DFA or DEQE determine that significant new findings indicate that an herbicide may not be suitable for use in sensitive areas, that agency will notify the other agency in writing, before July 14th, of the new findings and reasons for the determination. Four meetings will be held on separate days prior to the issuance of the List to discuss the significance and implications of the new findings and to reach a consensus on the herbicide's recommended for use within sensitive areas.

3. Rate, Method and Frequency: In sensitive areas, as set forth above, the maximum rate of application will be the minimum recommended rate listed on the product label or labeling for specific target species or sites. In sensitive areas, the only permitted methods of application will be selective low pressure foliar techniques or by stem application as provided for on the label or labeling. The frequency of application in sensitive areas will be as prescribed in pertinent provisions of 333 CMR 11.04.

4. Timetable : During February of the year immediately preceeding the date of scheduled implementation of the provisions of 333 CMR 11.00, DFA will request of Rights of Way applicants a list of registered herbicides they wish to apply to rights of way they control within the Commonwealth. By August 15, DFA and DEQE will make the Final Document available to interested parties.

The Final Document will be mailed by DFA to all applicators who are certified in Category 40 (Rights-of-Way). DFA will publish notification of the availability of the Final Document in the Environmental Monitor during September.

5. Distribution of List: The Final Document will be disseminated as described aboved and will be made available upon request to the DFA Pesticide Bureau or to the DEQE Division of Wetlands and Waterways.

The signatory agencies will fully participate in the cooperative review of herbicides to the extent allowed by statutory limitations and resources available to ensure that a uniform and fully coordinated interagency program is achieved.

S. Russell Sylva, Commissioner
Department of Environmental
Quality Engineering

1 July, 1987
Date

for August Schumacher, Commissioner
Department of Food and Agriculture

2 July 1987
Date

APPENDIX A

Narrative for Herbicide Evaluation Flowchart

Herbicides registered for use on Rights of Way are products that have been registered with both the Federal EPA and the Commonwealth of Massachusetts . Products are composed of active ingredients and "inert" ingredients. The active ingredients are the agents that are active against the target organism eg., broadleaf weeds. The "inert" ingredients can be solvents, emulsifying agents, surfactants etc. These agents, among other actions, increase the efficacy of the active ingredients.

EPA has data requirements for both active ingredients and products. Product specific data requirements vary .with the end use of the product. Most of the environmental fate and toxicological data available have been generated for the active ingredient, information regarding the environmental fate of the active ingredient will be reviewed and evaluated in stage 1. Information regarding the toxicological profile of the active ingredient will be reviewed and evaluated in stage 2. In stage 3, product specific information will be reviewed, evaluated and complied for those parameters of the active ingredient outlined in stages 1 and 2. For simplicity, these appendices' refer to herbicides with a low probability of reaching of designated receptors as "immobile", all others are referred to as "mobile". Further, herbicides judged not to pose a hazard to these designated receptors will be referred to as "non-toxic", all others will be referred to as "toxic".

The phases organize the order in which the review and evaluation process will occur. The first phase, resulting in a list of "immobile" and "nontoxic" herbicide products, will be done first. The second phase, a further review of both "toxic" and "mobile" compounds, will follow completion of the first phase at the descretion of DEQE and DFA.

The probability that the active ingredient(s) of a herbicide will reach designated receptors will be evaluated in the first stage. Next, the toxicological hazard posed by the herbicide active ingredient to these receptors will be evaluated. In Stage 3, products registered for use on Rights-of-Way containing those active ingredients successfully meeting the criteria established in stages 1 and 2 are identified and their environmental fate and toxicity will be reviewed and evaluated. Stage 1 and Stage 2 are performed independently. Stage 3 review and evaluation is performed only when an active ingredient successfully meets the criteria as specified in stages 1 and 2.

The first phase consists of: an environmental fate analysis, followed by a hazard review and evaluation of only those herbicides judged to be "immobile", and a product review and evaluation of these herbicides evaluated and determined to be "immobile" and "non-toxic". The second phase occurs only after the first phase is completed. In the second phase, the toxicity of "mobile" active ingredients may be evaluated and "toxic" but "immobile" active ingredients may also be further evaluated at the discretion of DFA and DEQE.

In stage 1 of the first phase, the probability that an herbicide's active ingredient(s) will reach designated receptors is reviewed and evaluated. This stage provides for a review of the- physical and chemical characteristics (Appendix B-2) that govern the environmental fate of each active ingredient. A Pesticide Root Zone Management Model (PRZM) simulation will be done as part of stage 1. Following this review, the active ingredients will be evaluated as either "mobile" or "immobile". Potential toxicological hazards posed by active ingredients judged to be "immobile" will be reviewed and evaluated in stage 2 of the first phase. "Mobile" active ingredients, or those without sufficient data to perform

a complete environmental fate review and evaluation, will not undergo further review in the first phase. The hazard posed by these active ingredients may be evaluated in the second phase.

In stage 2 of the first phase the potential toxicological hazards posed by "immobile" active ingredients to designated receptors is reviewed and evaluated. These receptors will include, but not be limited to, humans, other mammals, aquatic organisms, insects, birds, plants and other non-target species. If after this review the herbicide active ingredient is determined to be "non-toxic", it will undergo stage 3 product review and evaluation. Active ingredients determined to pose a hazard to the above receptors, i.e. be evaluated as "toxic", or that do not have sufficient data to perform a complete hazard evaluation will not be further reviewed in the first phase. If necessary, such active ingredients may be reviewed and evaluated in the second phase.

In stage 3, a review and evaluation of products containing, the active ingredients that have successfully met the criteria in stages 1 and 2 will occur. Any product specific characteristics that significantly alter the mobility or the toxicity of the product will be identified and evaluated. In stage 3, toxicity and environmental fate data for the product are compared to the parent compound when data are available. If no substantial differences are found, then the product will be placed on the list. If differences are indentified, products with guidelines for use or not recommended. Guidelines may include, but are not limited to slope or wind restrictions.

The first phase is considered complete when all "immobile" and "non-toxic" herbicides from the original list have been identified. The second phase review will commence at the descretion of DEQE and DFA, or upon an applicant's written request.

In the second phase the toxicity of the "mobile" herbicides may be evaluated. If a "mobile" herbicide is determined to be "toxic" it will not be

recommended for use on Rights-of-Ways (ROW's). "Mobile" herbicides determined to be "non-toxic" may, but will not necessarily, be recommended for use with guidelines on ROWs.

Likewise, further evaluation of herbicides determined to be "immobile" and "toxic" in the first phase may, but will not necessarily, result in their recommendation for use with guidelines on Rights-of-Ways.

Appendix B

Appendix B consists of the List of Characteristics for Evaluation of Herbicide Environmental Fate (Appendix B-1), List of Characteristics Evaluation of Herbicide Toxicity (Appendix B-2) and the format for the Pesticide Active Ingredients Data Sheet (Appendix B-3).

APPENDIX B-1

List of Characteristics for Evaluation of Herbicide Environmental Fate

The following list of characteristics will be employed in the review and evaluation of the environmental fate for the herbicide's active ingredient in Stage 1, and for specific products in Stage 3. It is recognized that data gaps exist for herbicides, however, the more complete the database for each compound, the greater the confidence in each evaluation.

Transport

Water solubility
Soil/Water partition coefficient (Kd)
Kd divided by soil organic carbon (Koc)
Vapor Pressure
Speciation at ambient pH.

Persistence

Hydrolysis
Half-life
Photolysis
Half-life Soil
Half-life

Available data will be compiled for the environmental fate and characteristics of each herbicide using a pesticide Active Ingredient Data Sheet (Appendix B-3). In instances where specific data are not available for either the active ingredient or the product, evaluation will occur on a case-by-case basis.

When evaluating the data to determine whether a herbicide can be used in sensitive areas of Rights of Way, the minimum requirements will be evidence that the active ingredients and product will not reach designated receptors. Adequate positive evidence of mobility and/or persistence will result in the compound not receiving immediate recommendation for use in sensitive areas of Rights of Ways.

APPENDIX B-2

List of Characteristics for Evaluation of Toxicology

The following list of characteristics will be employed in the review and evaluation part of the toxicity of the herbicides active ingredient in stage 2 and for specific products in stage 3. It is recognized that data gaps exist for most herbicides, however, the more complete the data base for each compound the greater the confidence in each evaluation.

Mammalian Toxicity

Acute:

Lethal Dose for 50% of the test animal population (LD50)
(routes of administration; oral, dermal and inhalation if relevant)
Data for at Least 2 species required.

Irritant effects (eye, skin, upper and lower respiratory tracts)

Chronic - Subchronic:

Toxicological endpoint and resulting No observable Effect Level (NOEL)
or Lowest Observable Effect Level (LOEL)

Reproductive toxicity/developmental

toxicity Carcinogenicity: oncogenicity

Mutagenicity

Aquatic Species

Toxicity Acute:

LD50 or Lethal Concentration for 50% of test animal population (LC50)
cold water fish, warm water fish and invertebrate.

Chronic - Subchronic:

LD10 or LC10 (NOEL or LOEL or Equivalent)
cold water fish, warm water fish, invertebrate

Reproductive toxicity/developmental toxicity:
cold water fish, warm water fish, invertebrates

Avian Species
Toxicity
Acute:
LD50 or LC50

Chronic - Subchronic:
NOEL or LOEL or equivalent

Reproductive toxicity/developmental
toxicity: NOEL or LOEL or equivalent

Available data will be compiled for the toxicological endpoints for each herbicide active ingredient using a pesticide Active Ingredient Data Sheet (Appendix B-3). Products will be evaluated for mammalian, aquatic, plant, avian, and invertebrate toxicity based on available data. Instances where data on a particular toxicological endpoint for either the active ingredient or the product are missing will be evaluated on a case-by-case basis.

When data for a particular endpoint are available for more than one species, the lower dose will be used in the evaluation, unless it has been demonstrated that sensitive species will not be exposed to the herbicide.

When evaluating the data to determine whether an herbicide can be recommended for use in sensitive areas on Rights-of-Ways, the minimum requirements will be evidence that the active ingredient and product do not pose a hazard to mammals and other organisms with respect to: aquatic toxicity,, subchronic toxicity, carcinogenic response, mutagenic response, reproductive hazard, and development responses. Adequate positive evidence for any of the above toxicological endpoints will result in the compound not receiving approval in the first phase. The active ingredients may undergo further review in the second phase.

When the toxicological endpoint under investigation has a recognized threshold then a risk calculation will be made using the NOEL and safety factors for determining concentration. In cases where no threshold is recognized e.g., carcinogenicity and mutagenicity weight of evidence had potency will be considered.

APPENDIX A-2: Herbicide Evaluation Flow Chart