

TO: Razelle Hoffman-Contois, Chair, and Members of VT Pesticide Advisory Council

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SUBJECT: **PESTICIDE REGULATIONS REVISION: preliminary comments**

Thank you for this opportunity to comment on the June draft of the proposed Pesticide Regulations.

Pesticide use has increased from a *reported* amount of 225,441.95 pounds active ingredient in 2008 to over 634,407.04 pounds in 2012, (VAAFAM, 2012) *not* including large quantities of pesticides sold over the counter and used by individuals. Please see Appendices 1 and 2 for detailed pesticide use data for 2011 and 2012, and Appendix 3 for total reported uses 2002-2012. In 2012 the amount of herbicides used on corn exceeded the amount used in cooling towers, traditionally the largest use in the state. New research on atrazine (Fakhouri WD et al 2010) and glyphosate (Samsel A 2013) urges serious reduction in their use and increased promotion of non-toxic pest management. Lack of coordination between VAAFAM, Agency of Natural Resources, Department of Public Service and Public Service Board means continued or increased pesticide uses that “fall between the cracks”. VAAFAM's laissez-faire policy for uses on privately-held lands means ever-increasing uses with implications for human and ecological health.

As you consider my comments and your role in revising the Pesticide Regulations, I invite you to keep in touch with our communal dependence upon the water we all share, the shared atmosphere, the shared soil that grows our food, our connections with wildlife and future generations, and to ask yourselves these questions:

1. Can the current paradigm of reliance on pesticides for pest management and their regulation bring about the goal of pesticide reduction to protect human and ecological health, as promulgated in 6 VSA § 1102 ff?
2. Can the regulations be revised to have a closer relationship with the Statutes?
3. Can the Council find ways to expand the reach of the regulations to large unregulated uses?
4. Can you suggest how the State might move beyond reliance on pesticides to reliance on bio-intensive Integrated Pest Management to manage pest organisms?
5. How can VAAFAM move from crisis management to prevention of chemical misuse and promotion of alternatives?

Part 1 of my comments (pages 2-5) looks at lack of coordination between the Pesticide Regulations, their Goal Statement, Vermont law, watershed planning efforts, the Clean Water Act, and the utility development agencies. This section offers recommendations for increased integration between these policy and regulatory entities. Items in this section are numbered to assist in identification and discussion.

Part 2 (pages 5-9) presents my recommendations for new wording in the goal statement, definitions, as well as more comments.
 Part 3 (page 10) contains web resources that discuss alternative approaches.
 Part 4 (page 10-11) contains References.

PART 1: INTEGRATING REGULATIONS, GOAL STATEMENT, VT LAW, WATER LAW

(See www.leg.state.vt.us/statutes/sections.cfm?Title=06&Chapter=087 for VT Statutes on pesticides)

<u>item #</u>	<u>GOAL STATEMENT</u>	<u>compared with</u>	<u>REGULATIONS</u>	<u>>>></u>	<u>suggested REMEDY</u>
1.	mentions IPM		no definition of IPM; but IPM is cited in Section IV 9 (g)		add definition of IPM to regs (see Part 2)
2.	suggests soil/water conservation techniques		no such techniques mentioned in regulations		require bio-intensive IPM measures to reduce reliance on pesticides
	6 VSA 1102	compared with	GOAL STATEMENT	>>>	suggested REMEDY
3.	d (1) “assess effect ...on human health, water, wildlife...”		includes nothing about risk of pesticides to human and ecological health, or reducing reliance on pesticides for pest management. .		implement Alternatives Assessment. (See Part 2)
4.	d (4) “overall reduction in use of pesticides ...”				include language about reducing reliance on pesticides
	6 VSA 1102	compared with	REGULATIONS	>>>	suggested REMEDY
5.	d (4) overall reduction in the use of pesticides		Sec. II B 3: allows municipalities to use herbicides for poison ivy without a permit. This will <i>increase</i> pesticide use.		PLEASE REMOVE this . provision. Require use of IPM.

6 VSA 1102	compared with	REGULATIONS	>>>	suggested REMEDY
		<p>Sec IV (4) Herbicide use at electric substations remains unregulated while substations increase in number and size.</p>		<p>a) Include definition of substation (see Part 2); b) Require NPDES permit for point source herbicide drainage into waters of the State.</p>
		<p>Reduction of pesticides is not encouraged in the in the regulations.</p>		<p>Suggest legislation to initiate bio-intensive IPM programs & include means to pay for it.</p>
6. d(1) assess effects on human health		<p>Section IV (8) notification on same day or after treatment of pesticides used at condos does not enable protection of human health.</p>		<p>a) Require <i>7 day prior notice</i> day by applicator to managers of apartments or condos;</p>
		<p>ROW permits do not address risk from applications to human habitation nearby.</p>		<p>b) Notice should include product names and provided to residents by 3 days before treatment.</p>
				<p>c) Remaining provisions of 8 (a) iii (p.31) to be shared after treatment.</p>
				<p>d) Require permit with description of IPM measures already used.</p>
7. d (1) natural resources, water		<p>Section IV (2) d-e sets up no-win situation; permit buffers prescribed by VAAFm are inadequate to protect water, wetlands or plant communities.</p>		<p>a) Require stronger buffers and more use of IPM. b) Initiate legislation to make RR Integrated Vegetation Mgmt Plan stronger, mandatory & enforceable.</p>

<u>VSA 1102</u>	<u>compared with</u>	<u>REGULATIONS</u>	<u>>>></u>	<u>suggested REMEDY</u>
		Buffers are not clearly stated in regulations. (VAAFMM nd)		c) State ROW buffers clearly in regulations; d) Identify adjuvants in permits; e) Amend powers of the Secretary in Section III to include VPAC & ANR (See Part 2.)
		Section IV (2)(p) says nothing about including degradates in assessment of pesticides found in groundwater.		Sum of parent compound plus degradates should be basis of regulatory action.

<u>item#</u>	<u>Clean Water Act & NPDES</u>	<u>compared with</u>	<u>REGULATIONS</u>	<u>>>></u>	<u>suggested REMEDY</u>
10.	<i>All point source discharges of pollution require permits.</i> (EPA 2012)		Herbicide use continues at substations without regulatory oversight. Substations have underground drains acting as point-sources of discharge.		a) Include definition of substation (see Part 2). b) Require NPDES permits for substations with point-source drainage into waters of the state. c) Increase communication between VAAFMM, DPS & PSB. d) Initiate legislation requiring by new substations be built as closed systems to <i>avoid</i> need for long-term use of pesticides for maintenance. (See Part 2 re Powers of Secretary and Council).
11.	Anti-degradation policy (VT DEC 2010)		p.25 Sec.IV 4 (k) Required buffers for ROW use not stated in regulations; only in permits.		a) Increase & list required buffers in regulations or other designated public place.

item#	Clean Water Act & NPDES	compared with	REGULATIONS	>>>	suggested REMEDY
			ROW Permit process does not assess cumulative impacts of multiple ROW herbicide uses in Watersheds, a task that is difficult within scope of risk assessment.		<ul style="list-style-type: none"> b) Require assessment of impacts. c) Require ID and mapping of all streams affected by each permit. d) Relate permits to state stream designations in VT Water Quality Standards. e) coordinate with Watershed Planning efforts.
			ROW permit process does not consider additional impacts of drift retardants & surfactants added to herbicides on ecosystems.		<ul style="list-style-type: none"> a) Disclose names of such products in permits. b) Consider as part of permit process.
			ROW permit process does not urge use of non-toxic alternatives.		<p>Create incentive to use Chontrol Peat Paste to control cut stump resprouting in place of Garlon. (see Mycologic reference below)</p>
12. Anti-degradation policy phosphorus TMDL			fail to consider phosphorus contribution to streams & L Champlain from glyphosate uses. (See Cummings et al 2009; Forlani et al, 2008)		<ul style="list-style-type: none"> a) consult with USGS on testing and methods for testing for glyphosate & AMPA in surface waters. b) increase testing for glyphosate in VT waters; c) require alternative weed control.

PART 2: GOAL STATEMENT, DEFINITIONS & FURTHER COMMENTS

Page 3: Goal Statement-- suggested wording in place of current goal:

“THE GOAL OF THESE REGULATIONS FOR PEST CONTROL IS TO ENCOURAGE THE USE OF THE MOST ENVIRONMENTALLY RESPONSIBLE APPROACH TO EFFECTIVE PEST MANAGEMENT WITH LIMITED RELIANCE ON PESTICIDES. THE AGENCY OF AGRICULTURE BELIEVES THAT WITH IMPLEMENTATION OF BIO-INTENSIVE INTEGRATED PEST MANAGEMENT, WATERSHED PLANNING FOR SOIL AND WATER PROTECTION, AND ALTERNATIVES ASSESSMENT, THIS GOAL CAN BE ACHIEVED.”

Rationale: The current emphasis on pesticides for pest control fails to achieve reduction in pesticides or to protect human or ecological health. The State needs to move toward bio-intensive IPM and alternatives assessment to fulfill the mandate of 6VSA 1102. Alternatives assessment asks how we can *avoid or minimize damage* while achieving society's goals, rather than asking, as risk assessment does, how much of a hazardous activity is safe, meaning, how much damage the environment can tolerate. Alternatives assessment is based on the premise that damaging human or nonhuman health or the environment is not acceptable if there are reasonable alternatives (O'Brien M 2000).

SECTION 1 DEFINITIONS. Please add the following:

page 6: **ALTERNATIVES ASSESSMENT:** A DECISION-MAKING PROCESS THAT EXAMINES A FULL RANGE OF ALTERNATIVES IN ORDER TO AVOID OR MINIMIZE DAMAGE TO HUMAN OR ECOLOGICAL HEALTH WHEN THERE ARE REASONABLE ALTERNATIVES. THE APPROACH CALLS FOR TAKING PRECAUTIONARY MEASURES EVEN IF SOME CAUSE AND EFFECT RELATIONSHIPS ARE NOT FULLY ESTABLISHED SCIENTIFICALLY. THE PROCESS MUST BE DEMOCRATIC AND INCLUDE POTENTIALLY AFFECTED PARTIES.

[adapted from O'Brien M 2000]

page 10: **BIO-INTENSIVE INTEGRATED PEST MANAGEMENT:** A SYSTEMS APPROACH TO PEST MANAGEMENT BASED ON UNDERSTANDING OF PEST ECOLOGY, ACCURATELY DIAGNOSING THE NATURE AND SOURCE OF PEST PROBLEMS, AND RELIANCE ON A RANGE OF PREVENTIVE TACTICS AND BIOLOGICAL CONTROLS TO KEEP PEST POPULATIONS WITHIN ACCEPTABLE LIMITS, WHILE POTENTIALLY MAINTAINING RESISTANCE TO DAMAGE FROM PESTS. REDUCED RISK PESTICIDES ARE USED IF OTHER TACTICS HAVE NOT BEEN ADEQUATELY EFFECTIVE, AS A LAST RESORT AND WITH CARE TO MINIMIZE RISKS. BIO-INTENSIVE IPM USES PROACTIVE MEASURES TO REDESIGN THE AGRICULTURAL SYSTEM TO THE DISADVANTAGE OF THE PEST. [adapted from: Benbrook, CM (1996) page 4; Stratton DA (1992); and <https://attra.ncat.org/attra-pub/summaries/summary.php?pub=146>]

page 12: **SUBSTATION:** A HIGH VOLTAGE ELECTRIC SYSTEM FACILITY USED TO SWITCH GENERATORS, EQUIPMENT, AND CIRCUITS OR LINES IN AND OUT OF A SYSTEM. IT IS ALSO USED TO CHANGE AC VOLTAGES FROM ONE LEVEL TO ANOTHER, AND /OR CHANGE ALTERNATING CURRENT TO DIRECT CURRENT OR DIRECT CURRENT TO ALTERNATING CURRENT.

[adapted from http://www.osha.gov/SLTC/etools/electric_power/illustrated_glossary/substation.html]

page 13: “**VERMONT PESTICIDE ADVISORY COUNCIL: A COUNCIL CREATED THROUGH ACT 273 IN 1970 BY THE VERMONT LEGISLATURE TO PROVIDE POLICY GUIDANCE IN PESTICIDE USE AND REDUCTION IN ORDER TO PROTECT HUMAN HEALTH AND NATURAL RESOURCES.**”

Rationale: A definition is needed to cover recommended language in Section III of regulations.

Please add language instituting transparency for the Council's activities, including web announcement of meetings, permit hearings, posting of minutes and right-of-way permits.

SECTION III POWERS OF THE SECRETARY

page 16. Please include provision for citizens to challenge ROW permits.

Page 17. Add suggested language in UPPER CASE:

In addition to authority conferred by these regulations, the powers of the [Commissioner] Secretary include all statutory authority vested in the [Commissioner] Secretary, now or in the future, to enforce state pesticide laws and regulations. The [Commissioner] Secretary shall, IN COOPERATION WITH THE PESTICIDE ADVISORY COUNCIL (the Council) AND THE AGENCY OF NATURAL RESOURCES (ANR), develop and implement policies and strategies for PEST MANAGEMENT, the protection of ground and surface water resources, AND ALLOCATION OF LABORATORY FACILITIES FOR MONITORING PESTICIDE CONTAMINATION. THE SECRETARY AND COUNCIL MAY PARTICIPATE IN PUBLIC SERVICE BOARD DOCKETS TO CLARIFY PESTICIDE POLICIES AND TO SEEK PROJECTS THAT AVOID USE OF PESTICIDES THROUGH ENVIRONMENTALLY CONSCIOUS DESIGN, LOCATION AND CONSTRUCTION. COUNCIL SHALL HAVE AUTHORITY TO SET UP WORKING GROUPS TO DEVELOP ALTERNATIVES TO PESTICIDES FOR LONG-TERM MAINTENANCE.

SECTION IV RESTRICTIONS ON THE USE AND APPLICATION OF PESTICIDES

The spirit of Title 6 of Vermont Statutes points to both reduction of pesticide use and to reduction of risk in their use. Implementation of pest management strategies in the IPM continuum is the only demonstrated way to reduce the use and risk of toxic chemical pesticides (Benbrook et al 1996). If pesticides are to be used, stronger notification rules are needed for agriculture, apartment and condominium complexes, schools, golf courses, and public notification of ROW permits on-line, so that members of the public can take measures to protect themselves. Once released into the community of life, pesticide movement and effects cannot be controlled. If “right-to-know” has any meaning, it must apply *before* exposure, as well as after the fact.

Page 17 Add before #1 suggested language:

MANAGEMENT OF PEST PROBLEMS INVOLVES KNOWLEDGE OF THE PEST TO BE CONTROLLED, THE VARIETY OF MEANS AVAILABLE TO CONTROL WITHOUT CHEMICALS, THE RISKS OF CHEMICALS AND THE FLEXIBILITY TO MAKE CHOICES.

RELIANCE ON PESTICIDES ONLY FOR PEST CONTROL REQUIRES ATTENTION TO PESTICIDE LABELS BUT DOES NOT LEAD TO REDUCTION IN USE OR IN THE RISK OF PESTICIDES.

Page 18 2 d. “Shall use pesticides and conduct operations under conditions known to minimize contamination of non-target land and water areas. Whenever the Department, as a result of an investigation, determines that non-target land and/or water have been contaminated with pesticides as a result of pesticide application, the applicator shall have the burden to rebut the presumption that pesticide use occurred under conditions known to not minimize contamination of non-target lands or waters.”

Comments: The above proposed language meant to protect waters is a helpful reminder of users' responsibility to protect water; however, contamination needs to be met with enforcement. What are the legal consequences for contaminating waters of the state?

Right-of-way buffers required between treated areas and waters are so minimal that pesticides are very likely to enter waters of the State, so the State is setting up a no-win situation that promotes contamination of waters. If VT Agency of Agriculture, Food & Markets (VAAFMM) is serious about avoiding contamination of non-target water or land, buffers need to be wider and alternatives need to be used. So far there have been no consequences to railroads for contaminating waters.

Page 18 2e. “Shall operate in a careful manner and exercise all reasonable and prudent actions to avoid non-target pesticide exposure. Reasonable and prudent actions shall include, but is not limited to, consideration of the pesticide formulation, toxicity and labeling; characteristics and condition of the application equipment; environmental conditions; location and characteristics of the application site including the nature, use, and activities on surrounding non-target land.

Comment: Avoiding non-target pesticide exposure is best done through use of alternative measures because off-site movement of pesticides cannot be controlled once released into human or natural communities. A viable alternative to herbicides for cut-stump treatment in ROWs has been registered for use in USA and in Canada: Chontrol Peat Paste (Mycologic Inc, n.d.)

Page 20. subsection 2 (p). “When monitoring indicates the presence of a pesticide in groundwater the Secretary shall respond as described in Sections 12-803 (3) and 12-804 (2) of the “Ground Water Protection Rule and Strategy” [GWPRS] for responses to detections when a preventative action limit or enforcement standard is reached or exceeded.”

Comment: The sections of GWPRS cited offer the option of “no action” where an enforcement standard is reached or exceeded. Enforcement is the basis for effective regulations. Please specify a stipulated enforcement action other than “no action” where an enforcement level is exceeded, to hold polluters accountable to standards. We cannot be complacent about chemical contamination of Waters of the State, which are Public Trust Resources.

Page 20 -23. Section IV subsection 4. Notification.

Please institute online notification of submission of right-of-way permit requests to use herbicides on rights-of-way and at substations, with ALL products including surfactants and drift retardants to be used, dates, locations with towns and streams to be affected.

Page 25-26. Section IV subsection 5:

- Notification should be required for *all* agricultural applications over one-half acre, not just aerial applications over fruit orchards.
- Farmworkers, whether documented or not, need to know when the livestock they are handling have been treated with insecticides, which present unique toxicity to humans, and should be given personal protective gear.
- Farmworkers, whether documented or not, should be given notice of exposure to pesticides (including herbicides) and not forced to work in treated areas before required re-entry intervals have passed.
- Drift retardants may reduce off-site drift of pesticides but do not prevent drift, and atmospheric transport is a reality (Muir DC et al 2004).
- The general public, especially survivors of leukemia, beekeepers, schools, families with small children, schools all need notifications of pesticide use in their vicinity.
- Given some who are not likely to do this voluntarily, notification must be a provision in the regulations.
- Given the trend toward more persistent low-dose herbicides and their danger to compost and food-growing systems, IPM methods must be strengthened to prevent their use, and use of these products must be curtailed. While labels for such products may have changed, consumers often purchase products without examining the label. How can the regulations prevent severe problems from recurring and damaging food crops?

RAILROAD INTEGRATED VEGETATION MANAGEMENT PLAN

In 2005-2006 the VPAC Railroad Workgroup developed the Railroad Integrated Vegetation Management Plan 2006-2011, which described and promoted a range of practices used by railroad staff to manage vegetation along railroad rights-of-way, as well as protocols for interacting with the public. The plan's status with regard to its ability to reduce herbicide use or to be enforced is not clear, but its premise of IPM can be a basis for added measures supported by law. The Railroad IVMP needs strengthening to reduce herbicide use near water, including glyphosate, which may be contributing to cyanobacteria in lakes (Cummings, 2009; Forlani et al, 2008). Please don't assume that glyphosate simply disappears or is harmless in water bodies.

BUFFERS

US Army researchers studied a variety of buffer situations and purposes, and found that grassy buffers were more effective at filtering out pesticides, and needed to be at least 35 feet wide to prevent pesticide contamination of surface waters, depending on pesticides, soils, and weather conditions. (USACOE, 1991). <http://el.ercdc.usace.army.mil/elpubs/pdf/sr24.pdf>

REDUCING PRIVATE SECTOR PESTICIDE USE

Considering the growth in big-box retail, growth in suburban developments adjacent to Lake Champlain, and increasing lake pollution with algae, pesticide reduction will not be achieved unless the state develops ways to at least monitor the sales of pesticides and pesticide-containing lawn amendments. Understanding how many pesticides are being sold over the counter and where such sales are concentrated may help with finding solutions.

PART 3 WEB RESOURCES

Alternatives Assessment: Oregon Environmental Council. Safer Alternatives Assessment. Includes consideration of structure design to avoid need for toxins. <http://www.oeonline.org/our-work/economy/alternatives-assessment>

IC2 Guidance for Alternatives Assessment and Risk Reduction. New England Waste Management Officials' Association. <http://www.newmoa.org/prevention/ic2/aaguidance.cfm>

ATTRA National Sustainable Agriculture Information Service: <https://attra.ncat.org/>

Bio-Integral Resource Center. [Www.birc.org](http://www.birc.org). Integrated Pest Management specialists in IPM solutions to urban and agricultural pest problems.

Bio-Intensive Integrated Pest Management. Link for book targeted to agriculture. <https://attra.ncat.org/attra-pub/summaries/summary.php?pub=146>

Neighborly Substations: Electricity, Zoning and Substation Design. http://www.manhattan-institute.org/html/crd_neighborly_substation.htm 2008.

Managing Roadsides without Herbicides. Northwest Coalition for Alternatives to Pesticides. www.pesticide.org/Alternatives/home-and-garden-toolbox/weed-solutions/roadside-spray-alternatives

PART 4 REFERENCES

Benbrook, Charles M, Edward Groth III, Jean M. Halloran, Michael K Hansen, Sandra Marquardt (1996). *Pest Management at the Crossroads*. (Yonkers, NY: Consumers Union, 1996) p.31

Centers for Disease Control (2008). Asthma in Vermont. http://www.cdc.gov/asthma/stateprofiles/Asthma_in_VT.pdf

Cummings M et al (2009). Poster: Phosphate Utilization by Great Lakes (Cyanobacteria). www.bgsu.edu/setgo/websiteposters/MCummingsposter09.pdf

EPA (2012). National Pollution Discharge Elimination System (NPDES). Clean Water Act. http://cfpub.epa.gov/npdes/cwa.cfm?program_id=45

Fakhouri WD et al (2010). Atrazine binds to the growth hormone-releasing hormone receptor and affects growth hormone gene expression. *Environmental Health Perspectives* 118 (10); 1400-1406. www.ncbi.nlm.nih.gov/pmc/articles/PMC2957919/

Fischer, RA and JC Fischenich (2000). Design Recommendations for Riparian Corridors and Vegetated Buffer Strips. <http://el.erdc.usace.army.mil/elpubs/pdf/sr24.pdf>

Forlani et al (2008). Biochemical bases for a widespread tolerance of cyanobacteria to the phosphonate herbicide glyphosate. [Plant Cell Physiol](#). 2008 Mar;49(3):443-56. doi: 10.1093/pcp/pcn021. Epub 2008 Feb 7.

Mycologic, Inc. (n.d.) Chontrol Peat Paste. <http://mycologic.ca/newsite/biocontrol/chontrol-peat-paste-mycologics-bioherbicide-2/>

Muir DC et al (2004). Empirical and modeling evidence of regional atmospheric transport of current-use pesticides. [Environmental Toxicology and Chemistry](#) 10: 2421-2432. <http://www.ncbi.nlm.nih.gov/pubmed/15511103>

O'Brien, Mary (2000). Making Better Environmental Decisions: an alternative to Risk Assessment. (Cambridge, MA: MIT Press)

Samsel, Anthony and Stephanie Seneff (2013). Glyphosate's suppression of Cytochrome P450 Enzymes... [Entropy](#) 2013 (15) 1416-1465. <http://www.mdpi.com/1099-4300/15/4/1416>

Stratton, Dayle Ann (1992). [Protecting Ground Water: A Strategy for Managing Agricultural Pesticides and Nutrients](#). Washington Dept. of Ecology, Water Quality Program. Ecology Publication #91-42

USACOE (1991). [Buffer Strips for Riparian Zone Management \(A Literature Review\)](#). Prepared for State of Vermont. January 1991. p.21.

VAAFV (nd). Right-of-way permit Regulations. http://agriculture.vermont.gov/sites/ag/files/PDF/Matts_Files/Right-of-Way%20Permit%20Regulations.pdf

VPAC Workgroup (2006). [Integrated Vegetation Management Plan for VT Rail System 2006-2011](#).

VT DEC (2010). http://www.vtwaterquality.org/htm/wq_antidegradation.htm