



June 6, 2016

Memorandum

Re: A literature review of risks relevant to the use of biosolids and compost from biosolids with relevance to the Nicola Valley, BC

In response to concerns regarding the storage and use of biosolids, in June 2015 the Ministry of Environment announced a scientific review of the land application of biosolids in the Nicola Valley. A Technical Working Group (TWG) was subsequently formed to review this issue. The TWG was comprised of industry professionals, academia, government experts and health authority representatives. Invitations to participate were sent to the following individuals:

- Dr. Lauchlan Fraser, Thompson Rivers University
- Dr. Wendy Gardner, Thompson Rivers University
- Dr. Les Lavkulich, The University of British Columbia
- Dr. Jorge Loyo, Ryerson University
- Dr. Lynda McCarthy, Ryerson University
- Dr. Anne-Marie Nicol, Simon Fraser University
- Dr. Ian Pepper, The University of Arizona
- Dr. Gordon Price, Dalhousie University
- Dr. Reg Newman, BC Ministry of Forests, Lands and Natural Resource Operations
- Dr. Brian Wallace, BC Ministry of Forests, Lands and Natural Resource Operations
- Shelly Bonte-Gelok, Ontario Ministry of Environment and Climate Change
- Maryam Mofidpoor, BC Ministry of Environment
- Christina Yamada, Interior Health Authority
- Laurie Ford and Tania Ghesegeer, Metro Vancouver

The TWG proposed that a literature review of biosolids land applications be developed to support the discussions. Dr. David Burton, Dalhousie University, was selected to conduct this literature review on the specific ecosystem effects of biosolids and compost from biosolids (henceforth referred to as “biosolids”) applications in semiarid climates, similar to that of the Nicola Valley.

The proposed output of literature review consisted of:

- A review of the existing research (consisting of a review of existing literature and individual research) related to how biosolids may impact wildlife (the resulting literature review and research on the effect of biosolids on domestic animals might also help explain the effects of biosolids on wildlife);
- Exploring the possibility for wildlife to be a pathway for potential contaminants from biosolids to enter the human food chain and affect human health through:
 - wildlife consuming plants fertilized with biosolids
 - wildlife ingesting insects exposed to biosolids

- wildlife drinking water exposed to biosolids
 - wildlife directly ingesting biosolids;
- A scientific review of the research and risk assessments regarding the benefits and quantitative human health risks associated with land application of biosolids; and
- A scientific review of any alternative management methods regarding the management of biosolids.

The TWG received a draft version of Dr. Burton's literature review and provided comments accordingly. A final version has since been submitted to the Ministry. The Ministry of Environment announced in April 2016 that the scope of the scientific review has expanded beyond the Nicola Valley to a province-wide review. As such, the TWG was not able to provide a formal review on the final version of the report; nonetheless, the members provided comments that can be found in the following addendum.

Addendum

The TWG was generally satisfied with the literature review content and recognized that:

- the content is stable;
- document organization is sufficient; and
- information regarding the pertaining regulation (the Organic Matter Recycling Regulation (OMRR)) and its guidelines was helpful.

Furthermore, the TWG recognized that opportunities exist for more robust research and possible further information gathering, and suggested that the project could benefit from knowledge gathering and discussion in the following areas:

- benefits of biosolids beyond nutrients such as utilization of biosolids in degraded soils;
- additional information regarding non-agricultural use of biosolids;
- expanding the topic of best management practices to buffers, limited application rates and other important environmental protection tools;
- additional description of currently existing best management practices in BC;
- background information regarding the regulation (OMRR) development process;
- information regarding the amount of manure land applied in the Nicola Valley;
- expansion of the comparisons of manure application vs. biosolids application quantities across the province;
- possibility of the presence of prions;
- expanding the discussion of human health risks to include odours; and
- addressing the knowledge gap surrounding the uncertainties around human health risks.