

Ministry of the Environment
136 St. Clair Avenue West
Toronto ON M4V 1P5

Ministère de l'Environnement
135, avenue St. Clair ouest
Toronto ON M4V 1P5



Standards Development Branch
2 St. Clair Ave. West, 12th Floor
Toronto, Ontario
M4V 1L5

January 22, 1998

Stroud, Ontario
L0L 2M0

Dear Mr.

Re: Evaluation of *in situ* bioremediation using Lambda's technology.

We have completed a summary review of the information and proposed design concept submitted to us on the application of Lambda's technology for *in situ* bio-remediation. Architectural, mechanical, structural, electrical or instrumental components of the technology, or the economic viability of the technology, were not covered in the review.

As a result of the review, we offer the following:

1. *In situ* bio-remediation is an emerging technology with great potential for application as a tool to be used in site remediation. The Lambda technology has been successfully demonstrated in the treatment of PAH's, BTEX and THP's at contaminated sites. Application of the technology for PCB treatment could not be assessed due to lack of information.
2. The treatment concept is generally applicable to Ontario conditions although some decrease in treatment efficiency can be anticipated during extremely cold periods.
3. The approach proposed by [redacted] in partnership with Lambda Bioremediation Systems Inc. (Columbus, Ohio) follows the approach generally recommended by north american scientific and government agencies and is suitable for use in Ontario

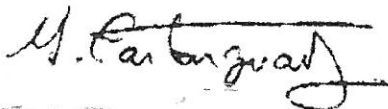
4. The procedures identified by [redacted] for *in situ* bio-remediation, including definition and investigation of the problem, design and implementation of a remedial strategy, and compliance monitoring, combined with effective application of Lambda microorganisms and nutrients, should ensure a high potential for successful remediation of a contaminated site.

In conclusion, the procedures and products developed by [redacted] in partnership with Lambda Bioremediation Systems Inc. are acceptable for *in situ* bio-remediation of a wide range of organic chemicals found at contaminated sites in Ontario.

The Ontario Ministry of the Environment does not issue generic approvals for site remediation. The owner of a site must obtain the necessary environmental approvals under the Ontario Water Resources Act or the Environmental Protection Act for surface water and groundwater discharges, control of air emissions and disposal of residues. Such approvals are required by law and take into account site-specific considerations and environmental impact constraints on a case-by-case basis.

I trust that this evaluation will be of assistance to you and should you have any queries regarding the above, please contact me at [redacted]

Yours truly,



Senior Engineer
Technical Services