



LIFE08 ENV/B/000046 LVM-BIOcells  
After-LIFE communication plan





## **1. Introduction**

This project focusses on the use of hydrogeobiocells (HGBcells) for the in-situ biological treatment of CAH contaminated groundwater in areas with low hydraulic gradients.

On the former LVM-site (currently VYNOVA) soil and groundwater are contaminated with chlorinated CAHs with an emphasis on 1,2-dichloroethane (12DCA). The contamination is caused by the production activities at the site (production of monovinylchloride) and has spread to a depth of 80m below ground level (12DCA accumulates in deep, anaerobic aquifers due to its physicochemical characteristics). The main sources of contamination were the process sewer, the tank farm and the waste water basin.

Chlorinated aliphatic hydrocarbons (CAHs) are the most difficult and expensive group of pollutants to remediate because of their physical and chemical characteristics. Since they are heavier than water they can easily migrate to large depths. Because they are very soluble in water and slowly degraded, they usually form large groundwater plumes which are very difficult to remediate.

Because of this, traditional remediation techniques are often inadequate, time-consuming and expensive. Moreover, the subject site is located at a groundwater divide, which results in very low hydraulic gradients and hence very low natural groundwater flow velocities. Enhanced groundwater modelling techniques were used to develop a specific method of treatment, subject of this proposal, that consists of the use of HGBcells for the in-situ treatment (using biostimulation and bioaugmentation) of the contaminated aquifer.

The main objective is to demonstrate that the HGBcells can be used for the full scale groundwater remediation at the site. Therefore the project has been carried out in different phases.

In a first phase, the HGBcell using biostimulation has been installed and operated in an area with CAH concentrations that range from 2-20mg/l. Next, the results of the first HGBcell were used to calibrate the existing groundwater model. In a parallel phase, the growth of the dechlorinating bacterial culture has been scaled up. This was followed by the installation and operation of an HGBcell using bioaugmentation in an area where higher CAH concentrations are present. Parallel with the third phase, the evaluation to develop an anaerobic bioreactor for the growth of the bacterial population on a large scale at the site has been done.

Monitoring of demonstration and dissemination of knowledge has been carried out during the entire project.

## **2. Communication strategy**

### **2.1 Actual methods of dissemination**

The main method of dissemination is the website ([www.lvm-biocells.be](http://www.lvm-biocells.be)). Visitors can see updates on the project and contact the partners for more information.

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In May 2011, an open door event was organised by Tessengerlo Group for the broader public. During this event also an information stand was set up about the LIFE+ project. OVAM is informed on the progress of the project through regular progress reports. Additionally, a yearly meeting takes place where the status of the remediation is given to several authorities (permitting, OVAM, Flemish Environmental Agency – VMM, etc.). Stakeholders from the industry were informed by newsletters that can be found on the project website.

Throughout the project duration several conferences have been attended where posters were presented and presentations were given. Additionally, several presentations were held during training sessions organised by sector organisations. All posters and presentations are included in the final report.

A site visit was organised for EC trainees and EC desk officers.

## 2.2 Future methods of dissemination

The project website will be updated on a regular basis and will be kept online for at least 5 years after the LIFE+ project finalisation. Since the remediation will continue, also the yearly progress meetings to update the authorities on the status will be maintained. Regular progress reports to OVAM will be submitted (at least every 3 years) and a yearly progress meeting with OVAM specific on the soil remediation project will be maintained.

Future planning includes the organisation of an open door event at the site, if the event takes place, a separate poster and information stand on the LIFE+ project will be foreseen for the visitors.

The partners RSK and AVECOM will include the project in presentations when attending specialised conferences. The centre of excellence of RSK has been founded to support RSK staff to deliver high quality projects and deliver consistent and technically sound solutions for environmental issues. The LVM-biocells case study will be used to disseminate the applied techniques and lessons learned within RSK personnel.

In 2013 Avecom made leaflets for the products and services that they offer. The project at Tessengerlo was included in a case study leaflet referring to the Life project LVM-Biocells. This leaflet is given to potential new clients and distributed at fairs.

## 3. Contact

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