Day of Young Soil Scientists 2014

MONITORED NATURAL ATTENUATION (MNA) OF CONTAMINATED SOILS: STATE OF THE ART IN EUROPE – A CRITICAL EVALUATION

INGE DECLERQ[1] & VALÉRIE CAPPUYNS[1,2]

[1]*KU Leuven, Faculty of Business and Economics@HUB, Warmoesberg 26, B-1000 Brussels, BELGIUM. E-mail: valerie.cappuyns@kuleuven.be*

[2]*KU Leuven, Department of Earth and Environmental Sciences, Celestijnenlaan 200E, 3001 Leuven, BELGIUM*

ABSTRACT. The use of natural attenuation (NA) processes for contaminated site cleanup and remediation has been gaining more attention over the last few years. However, the need for an inventory of the existing information concerning monitored natural attenuation (MNA), including the existing return on experience, has been sounding increasingly louder over recent years as well. This paper will focus on the application of MNA throughout Europe. First, a literature study and survey was performed in order to collect all available data on both qualitative and quantitative aspects of MNA. Secondly, a questionnaire was created and sent out to experts in the field of regulation and research from six countries, including Finland, Spain, and the UK. Thirdly, further contributions from a SNOWMAN workshop concerning MNA were included in this paper. The result is a state of the art concerning MNA for several countries, including the legal framework and existing protocols, a comparison between different countries, and an overview of some existing MNA cases throughout Europe combined with a discussion on relevant aspects related to ”return on experience”. The results demonstrate that MNA is now considered to be a conventional remediation technique in most countries that were included in this study. Although MNA is currently being applied for the remediation of contaminated sites, some countries still don’t recognize it as an official remediation technique (e.g. Finland). This study also confirms and illustrates the differences concerning the MNA approach that exist between different countries, as well as the differences in application levels. However, it is important to note that at the same time a certain level of coherence exists concerning the MNA approach, e.g. with regard to the importance of biodegradation processes. Furthermore, the main outcome of this study emphasizes the clear need to systematically collect and share information concerning existing MNA cases. Only then a clear return of experience will be possible.

KEYWORDS: soil contamination, biodegradation, monitoring, environmental legislation, groundwater