



POSIDON

POLLUTED SITE DECONTAMINATION PCP



EURECAT -AMPHOS21

Project Phase Abstract



POSIDON has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N.776838

Public Description of the Project

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Bidder Details	Type/ size of legal entity	Place of performance of contract activities	Logo
<p><u>Main contractor</u></p> <p>Fundació Eurecat Av. Universitat Autònoma, 23.08290 Cerdanyola del Vallès</p> <p>Irene Jubany, Technical director. +34 977 73 73, irene.jubany@eurecat.org</p> <p>Montse Calderer, Researcher +34 977 73 73, montse.calderer@eurecat.org</p>	<p>Research institute</p>	<p>% of contract value allocated to main contractor (in Phase 1): 50 %</p> <p>% of activities for the contract performed by the main contractor in EU Member States or countries associated with Horizon 2020: 100%</p>	
<p><u>Other consortium member(s) (if applicable)</u></p> <p>Amphos 21 Consulting SL Calle Venezuela 103, 2-1. 08019 Barcelona</p> <p>Contact: Jordi Guimerà, Director Hydrological Service +34 935 830 500, jordi.guimera@amphos21.com</p>	<p>larger company</p>	<p>% of contract value allocated to contractor (in Phase 1): 50%</p> <p>% of activities for the contract performed by contractor [x] in EU Member States or countries associated with Horizon 2020: 100 %</p>	
<p><u>Subcontractors</u></p>	<p>Not applicable</p>	<p>No subcontracts in Phase 1.</p>	



Project abstract

Reactive Infiltration **BA**sin for in-situ **Soil** treatment (**RIBAS**)

RIBAS solution is the combination of in situ solutions to remediate recalcitrant organic chemicals in soil together with some heavy metals and arsenic. The method proposes an intermittent washing out of the soil through saturated or partially saturated infiltration of a reactive solution that degrades organics and mobilizes metals to be captured by precipitation downstream.

It consists of an infiltration basin on top of the polluted site to be able to intermittently infiltrate either fresh water or treated groundwater amended with chemicals to favour certain chemical and biological reactions in the vadose zone. A square-shape basin is created by using specific retention devices that reach the lower permeability sediments below the contaminated layer in three sides. On the fourth side the retention device reaches the phreatic level creating a preferred way of groundwater circulation. The injected groundwater after its percolation through soil is directed to a permeable reactive barrier (PRB) designed to intercept leached contaminants, remaining amendments and by-products of the reactions. Downstream of the PRB, a line of well points will capture the treated groundwater and use it for further infiltration, thus closing the loop and minimizing the water use.

The idea behind RIBAS concept is to provide the appropriate conditions for reactions to take place in the contaminated vadose zone, in saturated or semi-saturated conditions required for most of the chemical and biological reactions.

For the inorganic elements (metals and metalloids), the goal is to solubilize them to be removed from the soil matrix and intercept them in the PRB in which they will finally be immobilized. For organic compounds, the goal is to provide the chemicals to reduce the compounds by chemical oxidation and/or biological aerobic degradation. The PRB will be able to capture the solubilized organic compounds that could eventually not being completely mineralized in the reactive layer. The different reactions required to remove such different compounds will take place sequentially thanks to different infiltration episodes in which specific amendments will be provided. This general concept can thus be applied to a varying range of contaminants since the chemicals and amendments to be added and the composition of the PRB can be designed specifically for each site pollutants.

The concept proposed is an advanced and scalable in-situ technology. It can be applied to a reduced scale in the pilot proposed for the project, but it is foreseen that a large scale infiltration would be easy to be reproduced and controlled by means of a combination of specific retention devices and PRB through a funnel-and-gate system.

