

Pesticide Contaminated Soil & Groundwater

Contaminated Water Solutions Case Study



Oceans-ESU Ltd were asked to remediate an old industrial site in South East England. The site was formerly a pesticide research and development factory which had been a manufacturing base for a wide range of agricultural, horticultural and garden chemical products. Extensive site investigations found that the soil and aquifer in the vicinity of the factory were contaminated with a wide range of pesticides, some of which never became available on the commercial market.



Overview			
Type of Effluent	Area	Load	Notes
Pesticide contaminated groundwater.	4,000m ² 4 Reed beds.	Removal of complex pesticide residues left in groundwater from a previous industrial site use.	Construction completed July 1998. Pesticides not detected at outlet – still operational after 13 years.

Following an industry-wide consultation process a solution proposed by Oceans-ESU Ltd was agreed by all parties involved. The reed bed treatment system was designed to achieve two purposes:

1) *Remediation of contaminated soils from across the site.* Contaminated soils were removed and treated initially by thermal desorption. The resultant contaminated soils were mixed with limestone powder. This served two purposes: Partial hydrolysis of some pesticides; Raise in pH to immobilise contaminants, allowing sufficient time for biological breakdown to be achieved.

2) *Long term remediation of contaminated aquifer waters from below the site.* Two pumps were installed to extract contaminated aquifer water from varying invert levels and feed it into the reed beds. This allows for re-circulatory remediation of the local aquifer, whilst also providing water essential for the growth of the reeds and the associated subsequent soil remediation.



Following the soil remediation, a proportion of the site has been sold for development with full certification from the Local Authority and the Environment Agency. Regular monitoring of the aquifer shows that some residual pesticide contamination remains. This water continues to be pumped through the reed bed system where all pesticides are removed.