Desalination and Water Treatment
www.deswater.com
1944-3994 / 1944-3986 © 2011 Desalination Publications. All rights reserved.
doi: 10.5004/dwt.2011.2616

33 (2011) 36–43
September

Treatment of ammonia-polluted groundwater in North Bohemian brown coal mining region — Feasibility study

M. Kubal, M. Podhola, T. Patočka, K. Ciahotný, M. Kuraš*

Institute of Chemical Technology, Faculty of Environmental Technology, Technická 5, Praha 6, 166 28, Czech Republic
Tel. +420 (2) 2044 4114; Fax +420 (2) 2044 5029; email: Mecislav.Kuras@vscht.cz

Received 20 January 2010; Accepted in revised form 6 October 2010

ABSTRACT

A feasibility study was completed to assess the applicability of reverse osmosis technology at the site, where a brown coal processing plant released 4000 ton of ammonia into the subsurface during 20 years. The present groundwater ammonia concentration (approx. 100 ppm) was required to be reduced to 0.5 ppm to satisfy the Czech groundwater remediation directives. The reverse osmosis principle was examined within this study with the aim to confirm its capacity to reach the ammonia remediation limit as well as to provide cost estimation. The technological process was simulated by means of pilot-scale installation using samples of contaminated groundwater. Reverse osmosis clearly demonstrated its capacity to clean up the ammonia polluted groundwater to the limit demanded.

Keywords: Polluted groundwater; Ammonia; Remediation; Reverse osmosis

* Corresponding author.