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2D electrical tomography to assess pollution in slurry ponds of the Murcia Region, SE Spain

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Large quantity of pig slurry is produced in Murcia Province raising serious environmental concern. Monitoring the evolution of the slurry ponds with time in the subsoil is a prime requirement for environmental safety. Our aim was to determine the temporary effects of pig slurry ponds on the subsoil in the Murcia Province to determine the degree of slurry pond infiltration in semi-arid climates. A non-destructive geophysical -2D electrical tomography technique was used to: 1) monitor the vertical movement of pig slurry into subsoil and 2) determine the possible depth of this movement. The results of our studies showed that the method works well and areas affected by such slurries have indeed developed environmental problem with time. The method identified the lithological layers with suitable resolution to study the possible pollution, including salts, of the subsoil by slurry. The method is also able of monitoring seasonal changes and behaviour of the polluting plume on different subsoil in the ponds.