

Assessment of groundwater environment at FMD burial sites

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A serious outbreak of foot-and-mouth disease in Korea, leading to the stamping out of 3.53 million pigs and cattle and the construction of 4,538 burial sites until 15th March, 2011 [1]. Foot-and-mouth disease (FMD) caused by picornavirus is a severe plague for animal farming that affects cloven-hoofed animals such as cattle and pigs. The most important issues for livestock burial are protection of groundwater contamination by leachate. To examine groundwater contamination by leachate from livestock burial sites, evaluation of groundwater chemistry, tracer tests, and electrical resistivity survey were addressed in the study. The research results indicated that livestock mortality leachate from burial sites contained high concentrations of NH₃-N, TN, HCO₃, Cl, Mg, K, and Na along with relative lesser amounts of Fe, and Ca.

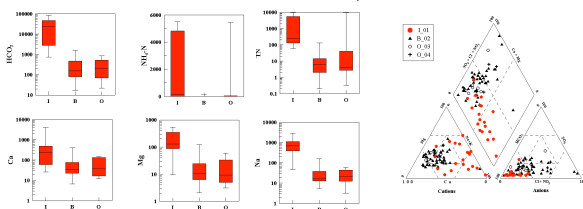


Figure 1: Box and Piper plots indicating the influence of leachate.

The tracer tests using fluorescein (uranine) dye were performed to evaluate the leak of leachate from 7 burial sites. The results showed that 5 sites were evaluated to leak and 1 site was doubted to leak. The electrical resistivity survey to figure out leakage of leachate derived from livestock carcass was conducted total of three times. The investigation results showed that low electrical resistivity was observed at contaminated area by leachate. Additionally, there was little variation of electrical resistivity value as time elapsed.

[1] Kaown *et al.* (2015) *Env. Earth Sci.* **73**, 4647-4657.