Liquid and solid waste reduction by using Reversed Osmose.

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Radioactive waste water produced at the NRG site in Petten is treated in our waste water treatment facility by membrane filtration and by the use of flocculent to reduce the amount of liquid waste. By using a flocculent a quite amount of sludge as secondary waste is produced. To reduce the amount of solid secondary waste tests have been performed with reversed osmose.

The effect of reverse osmose was tested on:

- differend types of waste
- differend concentrations of heavy metals such as Cr, Co, Ni, Cu, Zn, As, Cd, Sn, Hg, Pb …
- Kjiedahl nitrogen
- chemical oxygen demand.

It was shown in the experiments with different original waste waters that for the greater part of waste streams a radionuclide concentration reduction of 90%-100% can be achieved. The reduction of nitrogen and oxygen is in the range of 65%-100% depending on the waste steam type.

The introduction of reversed osmoses resulted in three advantages:

- the amount of flocculent that has to be used can be reduced up to 50%.
- it becomes possible to re-use waste water in certain cleaning processes which was not possible before the use of reversed osmoses.
- the water which is released is much cleaner than without the use of reversed osmoses.