PFOS MOBILITY AND REMEDIATION IN THE GROUNDWATER ZONE OF GLACIOFLUVIAL SEDIMENTS, GARDERMOEN, NORWAY

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• Oslo airport, Gardermoen - geological conditions

• PFOS - spill

• Hydrogeological conceptual model and monitoring network

• Numerical modelling of remediation

• Conclusions
Oslo lufthavn - Gardermoen
Groundwater table and recharge
Infiltration magazine and monitoring wells
Hydrogeological conceptual model

- Delta topset beds
  - Sand and gravel

- Delta foreset beds
  - Gravely medium sand

- Delta bottomset beds
  - Silty finesand
PFOS concentration, 7 October 2011
PFOS concentration, 26 January 2012
PFOS concentration, 2 July 2012
Principle sketch of remediation scheme
Groundwater advection transport 620 days
After 16 months of pumping and re-infiltration
Conclusions

- Modelled lateral transport correlates with monitoring samples.

- Groundwater samples indicate a PFOS-retardation of plume front $R=1.77$.

- Estimated front arrival to remediation borehole February 2013.

- Remediation period is estimated to approximately 5-6 years (groundwater limits: 500 ng/l PFOS).

- Low pumping rates to limit remediation coats and limit clogging av system by iron, manganese and calcium.