



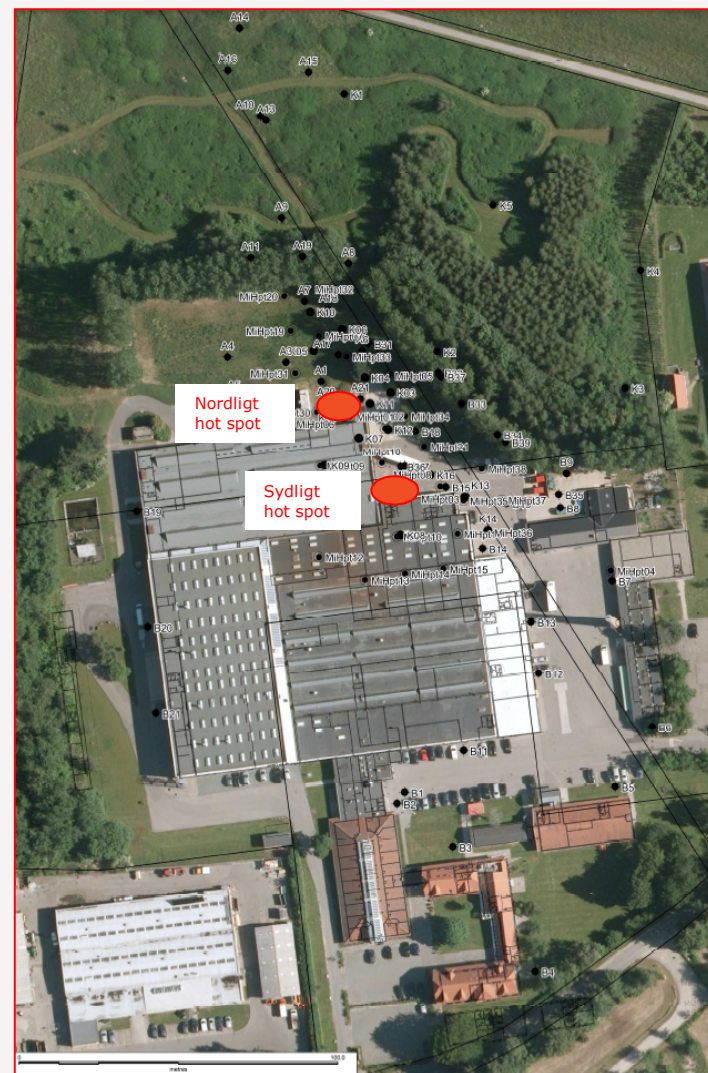
**Møllevej 9, Nivå
Anvendelse af 3D-geologisk model
til støtte for tolkning af forureningsudbredelse
i lavpermeable aflejringer**

Kirsten Rügge, Bo Tegner Bay og Thomas Breum Andersen, COWI
Peder Johansen og Helle Overgaard, Region Hovedstaden

COWI

Baggrund

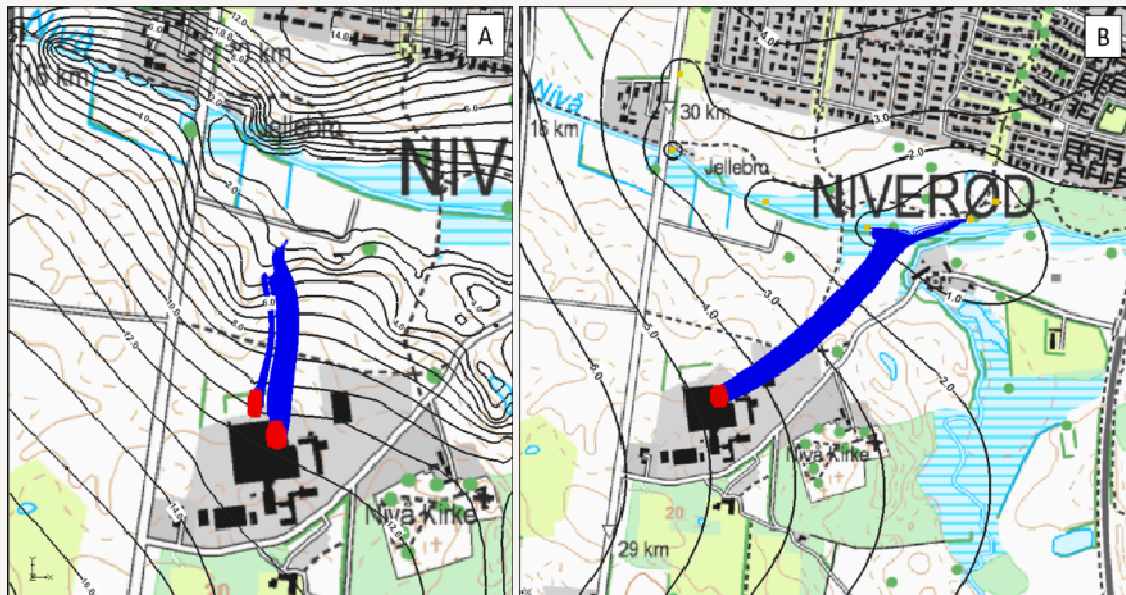
- > Produktion af haner til gasflasker
- > Intensiv brug af TCE fra 1957 til 2000
- > To hot spot områder:
 - > Nord: Udledning af kondensat fra TCE anlæg
 - > Syd: Opbevaring og håndtering



Formål



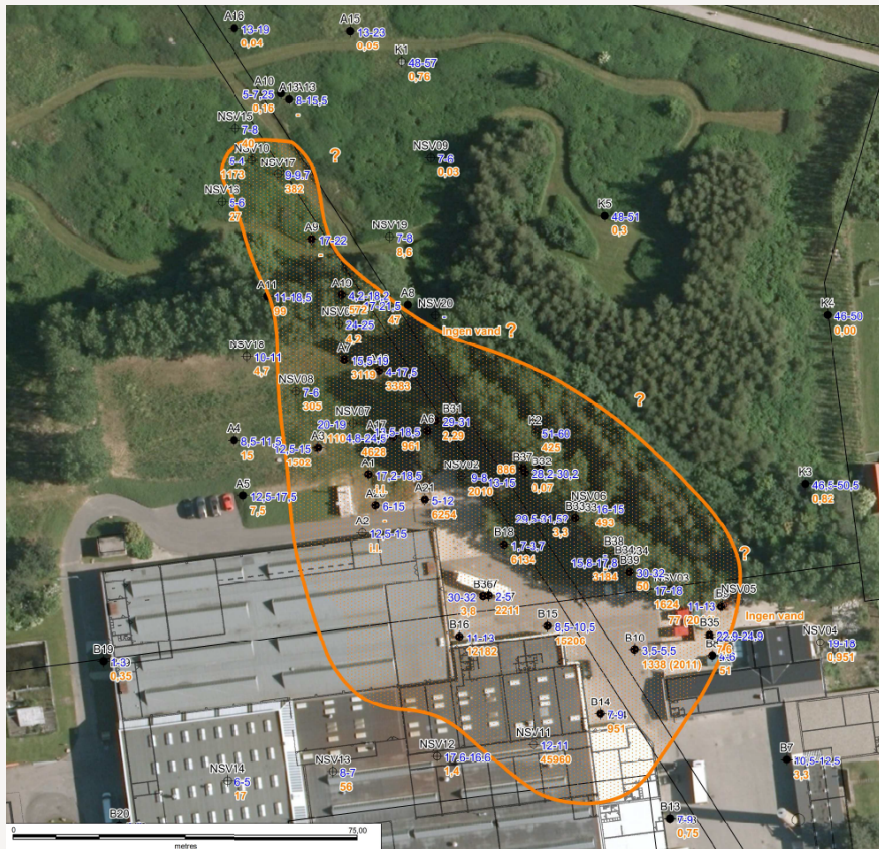
Modelleret forureningsfane



sekundære magasiner

Primært magasin

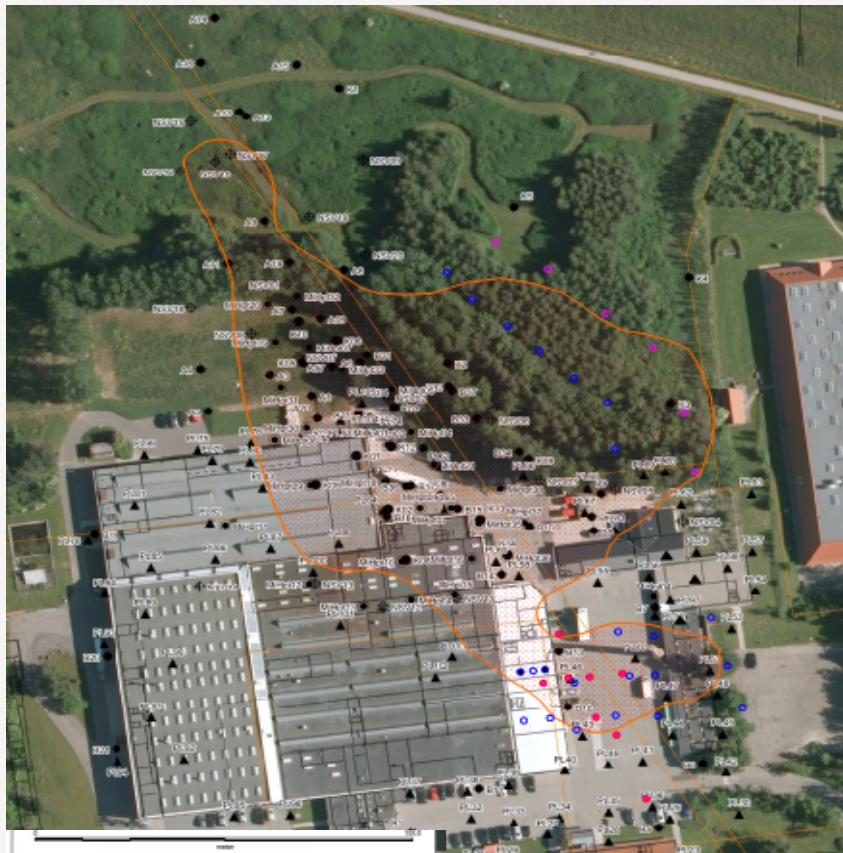
Udbredelse i grundvand, sum chlorerede ($\mu\text{g/l}$)



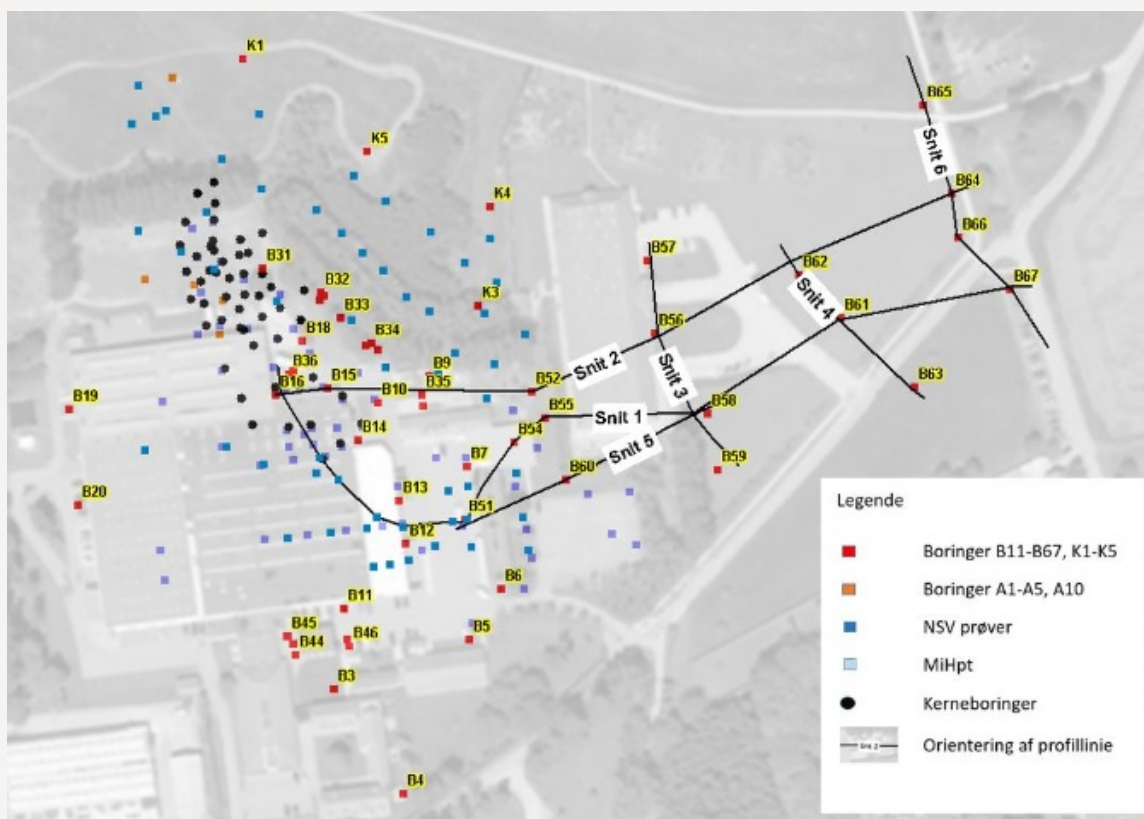
Danmark før og nu



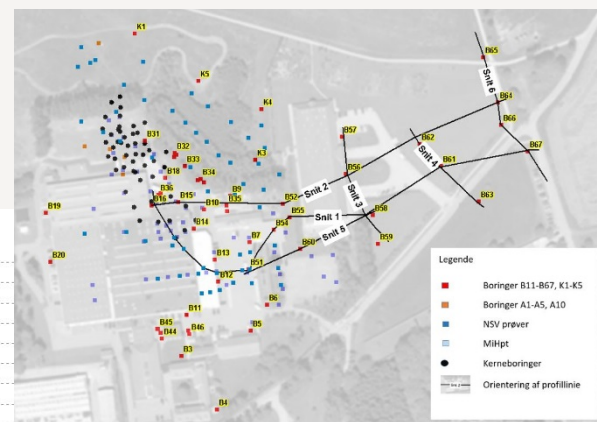
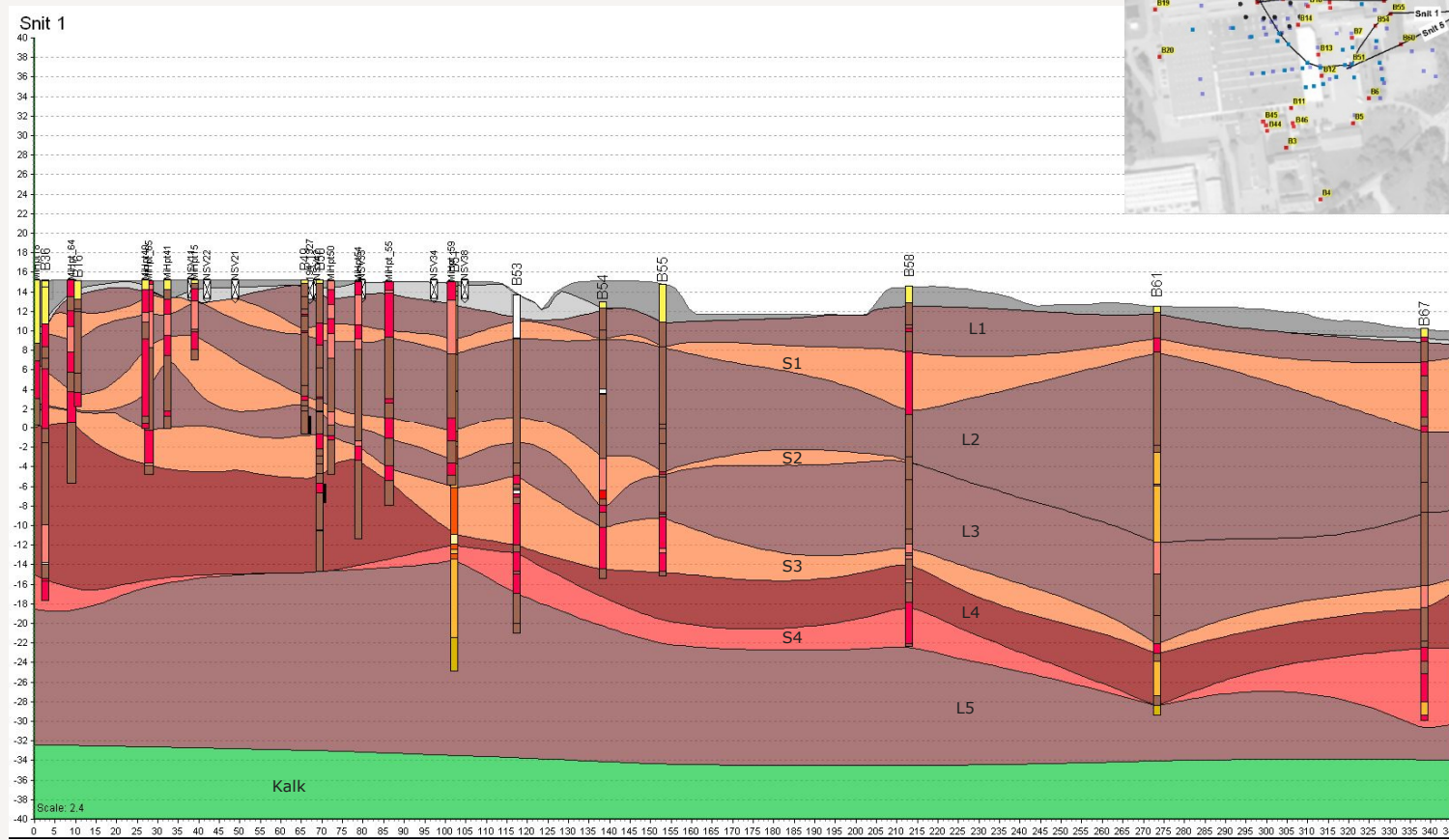
Udbredelse i grundvand, sum chlorerede ($\mu\text{g}/\text{l}$)



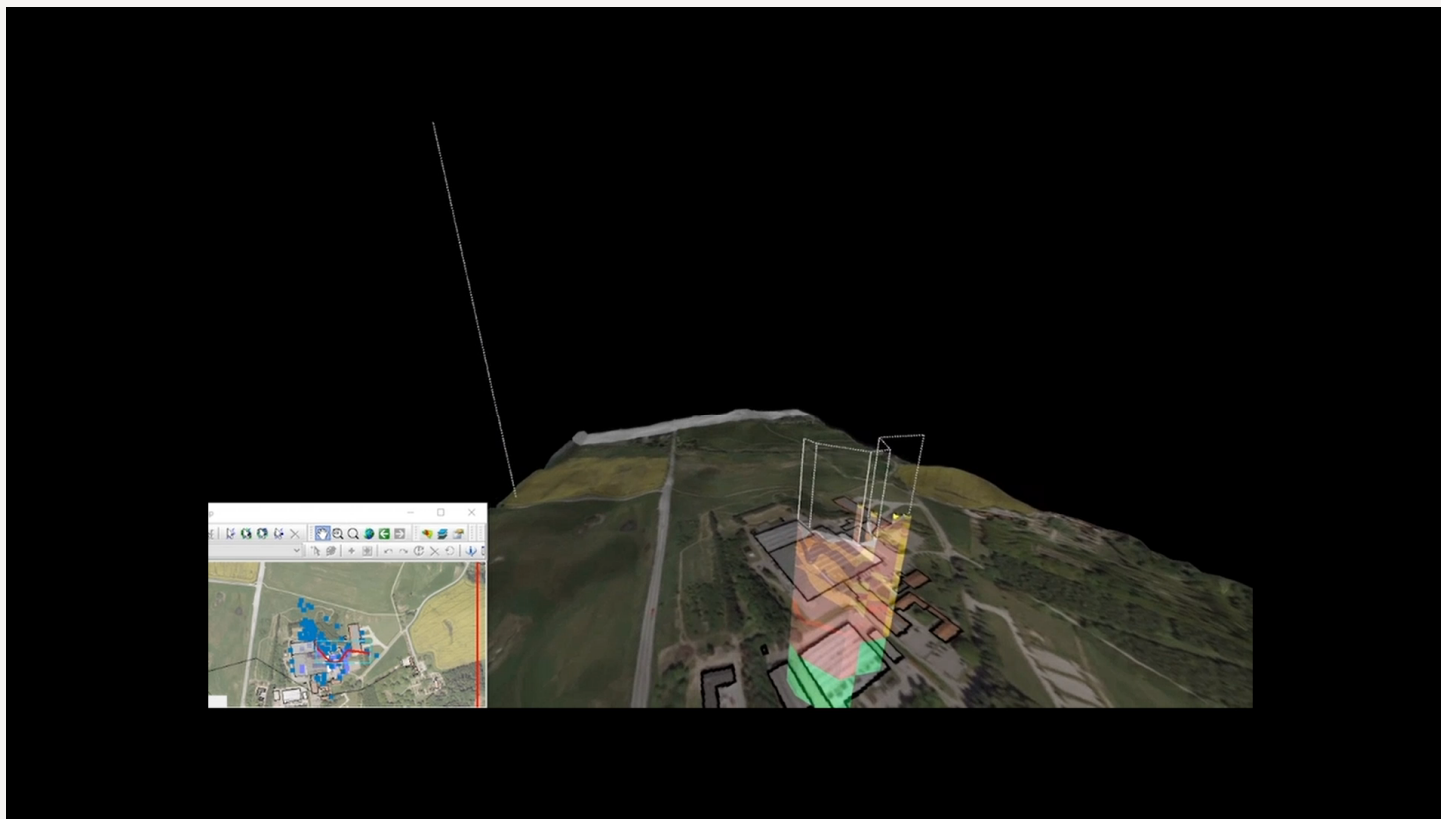
Mulige strømningsveje



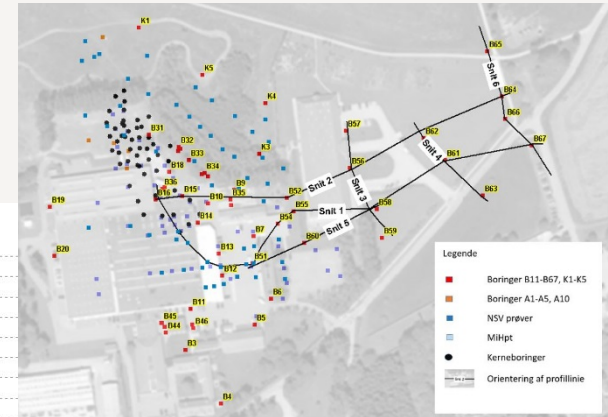
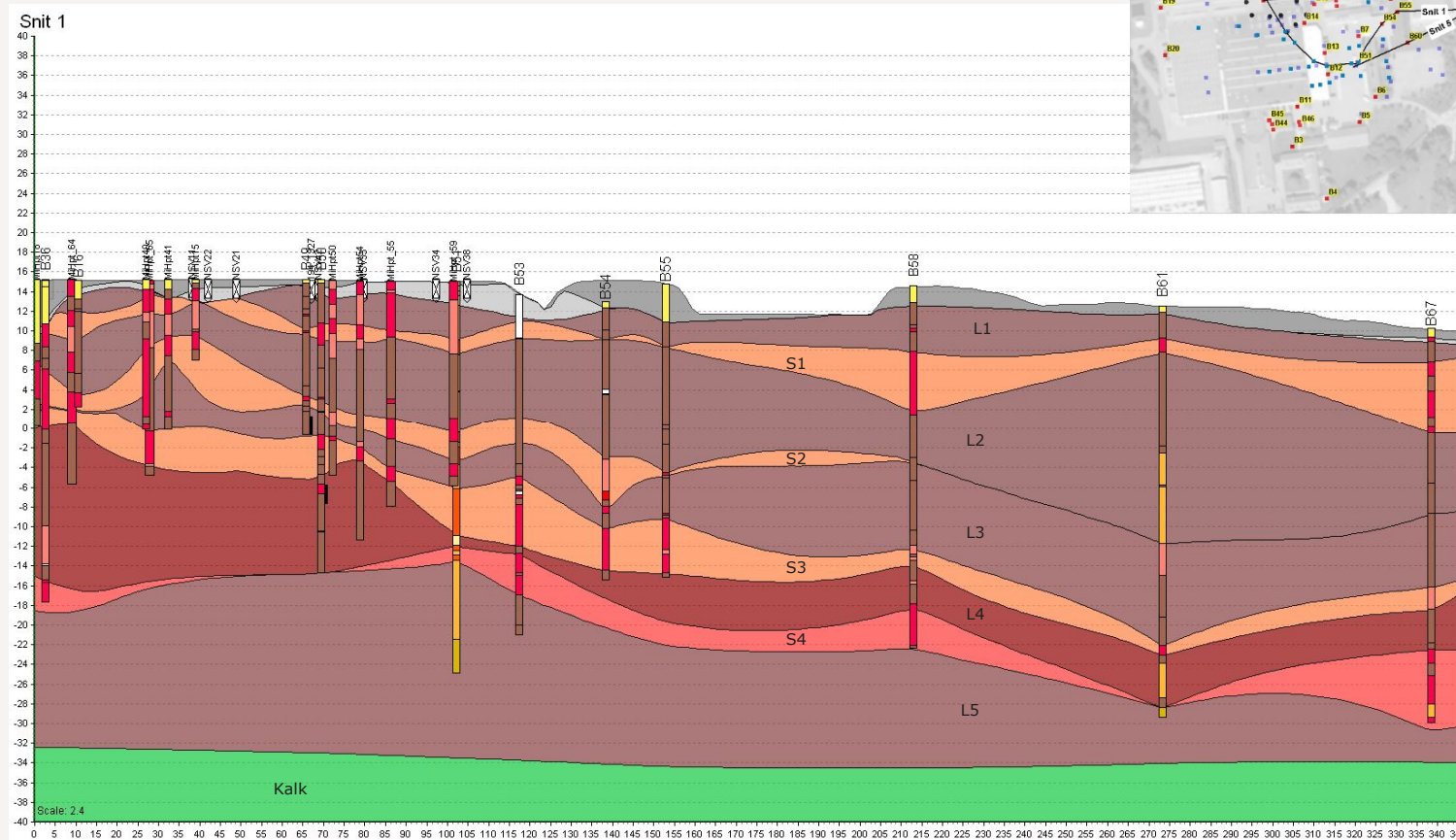
Snit 1-Geologisk tolkning



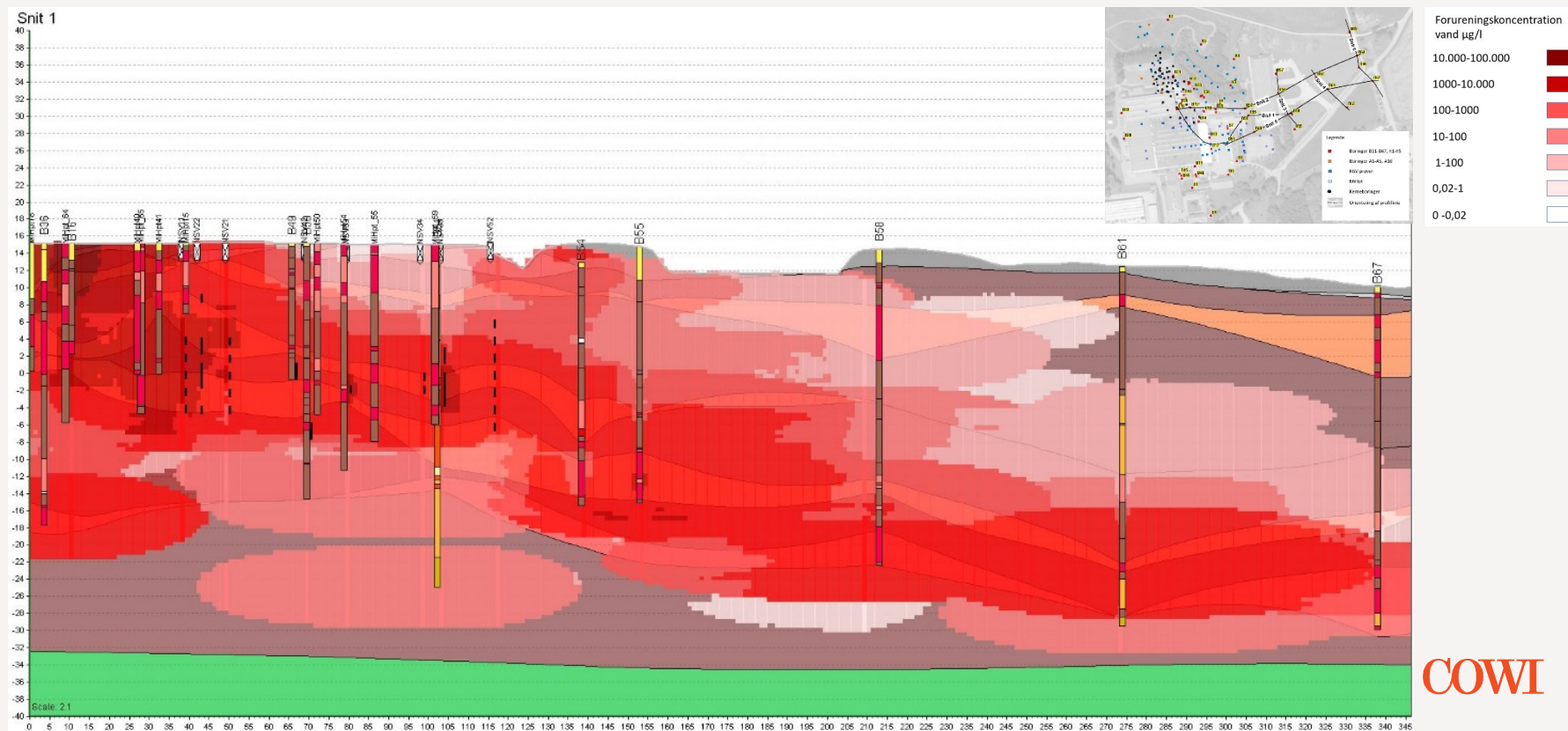
Vest-øst



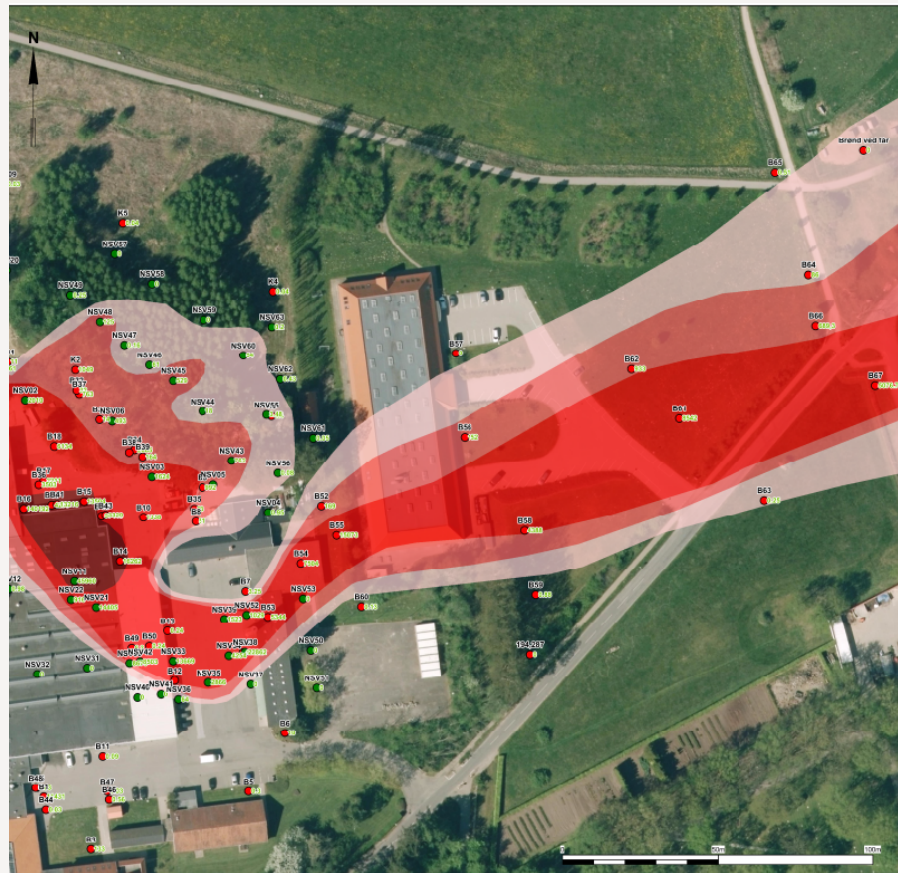
Snit 1-Geologisk tolkning



Snit 1-Udbredelse af sum chlorerede i grundvand

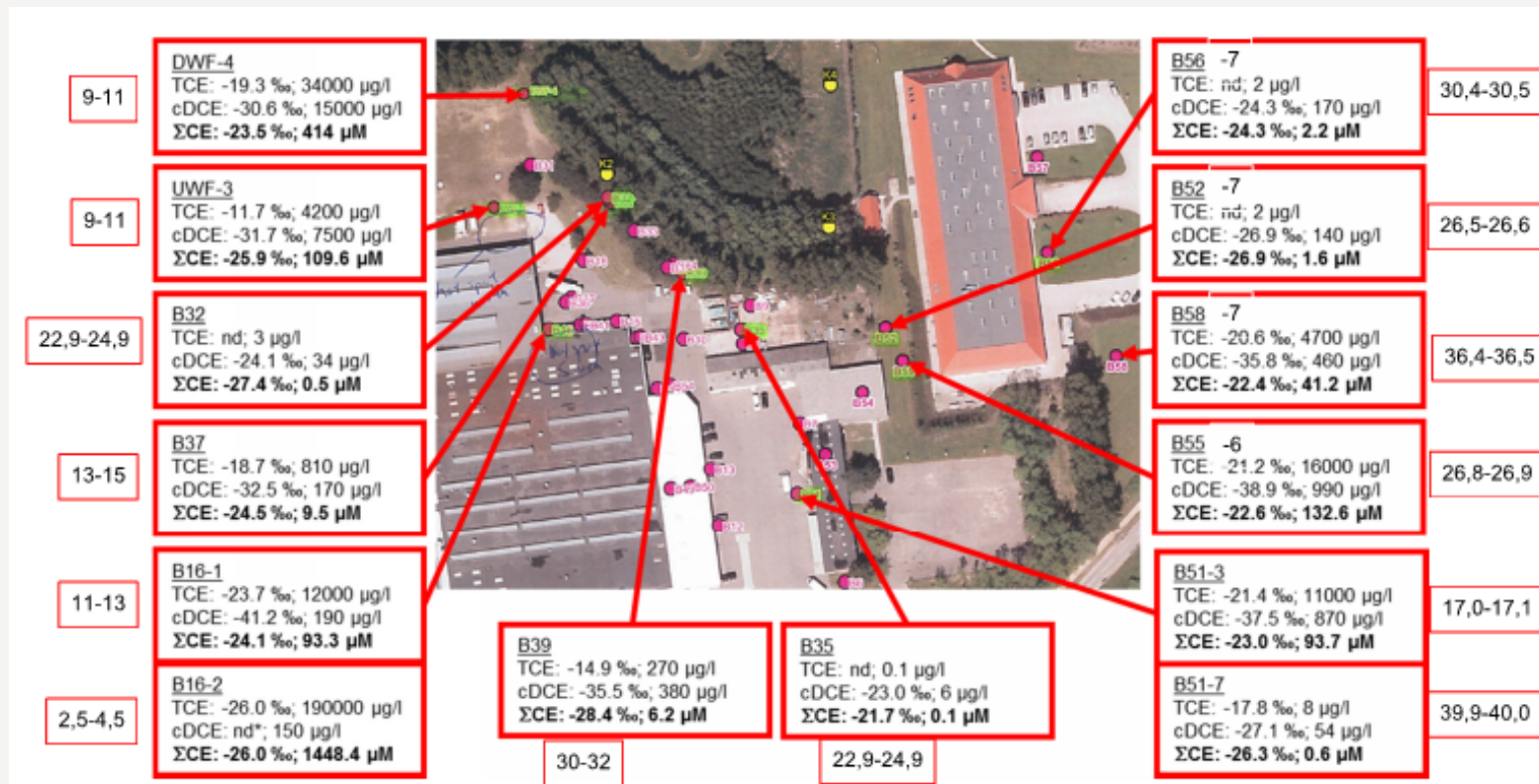


Udbredelse af sum chlorerede opløsningsmidler i grundvand

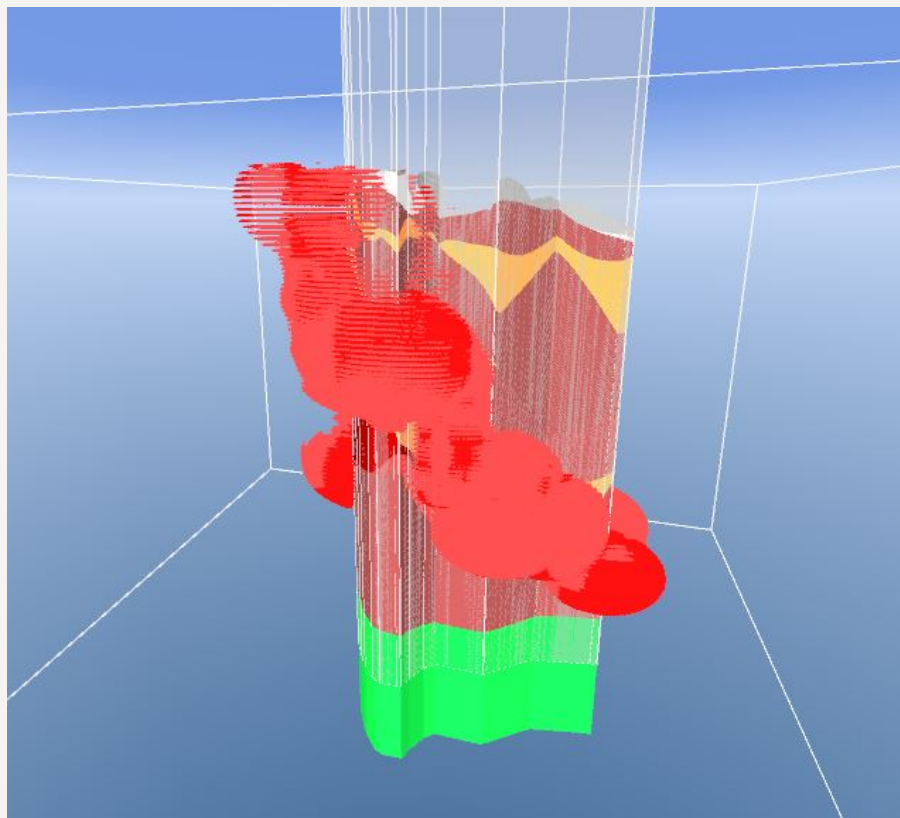


- Signaturer:
- Boring
 - Niveauspecifikke vandprøver
 - +24 Sum chlorerede opløsningsmidler (µg/l)
 - Sum chlorerede opløsningsmidler > 10.000 µg/l
 - Sum chlorerede opløsningsmidler > 1.000 µg/l
 - Sum chlorerede opløsningsmidler > 100µg/l
 - Sum chlorerede opløsningsmidler > 1µg/l

Isotopanalyser til verificering af tolket spredningsvej

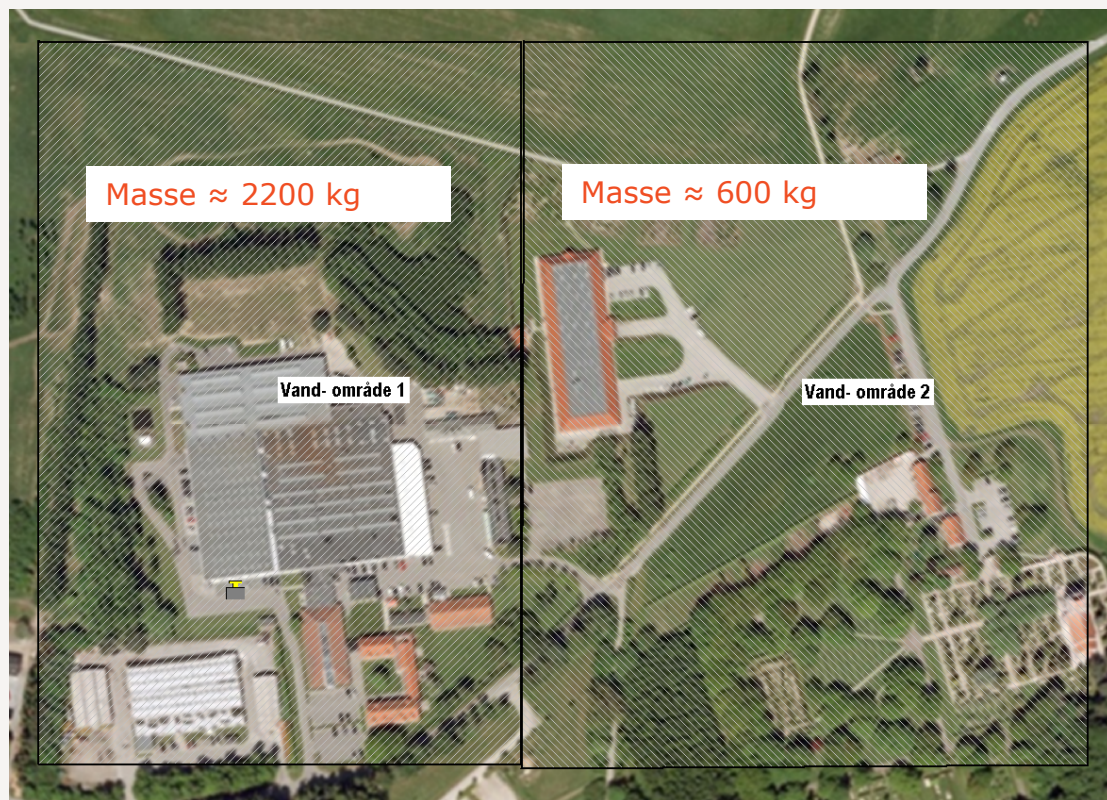


Masseberegning i 3D geologisk model

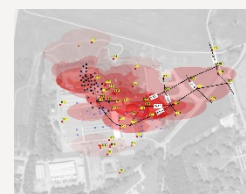


Konc. > 100 µg/l

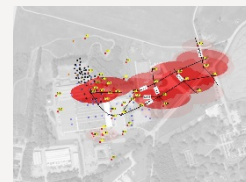
Masseberegninger



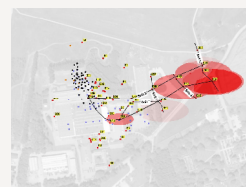
Samlet masse \approx 1000-3000 kg



Kote -10 m \approx 25 m u.t



Kote -20 m \approx 35 m u.t



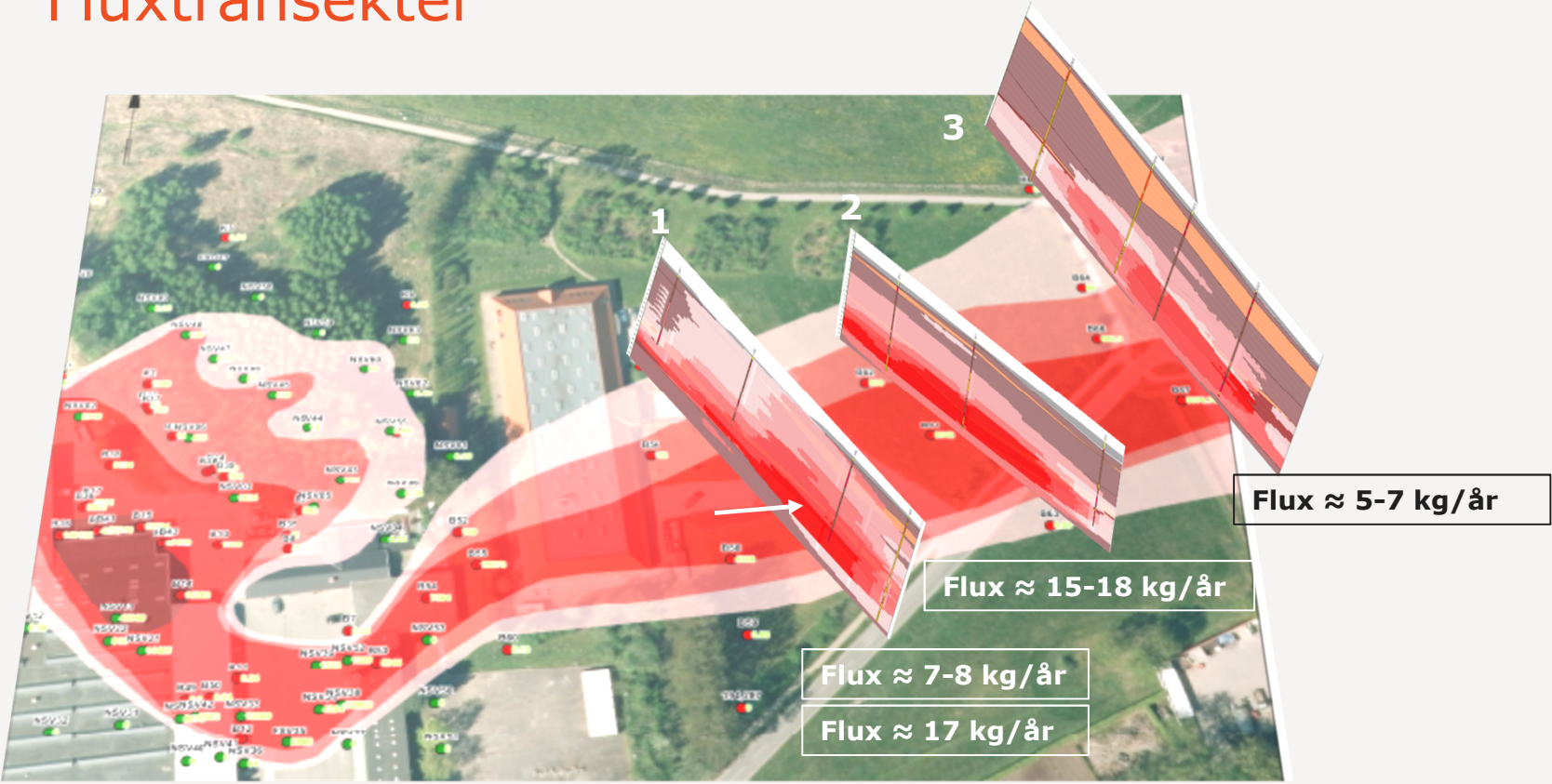
Kote -30 m \approx 45 m u.t



Kote -40 m \approx 55 m u.t

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Fluxtransekter



Konklusion

- > Meget kompleks geologi
- > 3D-geologisk model
 - > essentiel for forståelsen
 - > gav svar på vores frustrationer
 - > gjorde, at vi ikke stoppede for tidligt
 - > masse af chl. opløsningsmidler på 1000-3000 kg
 - > flux ca. 17 kg/år



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