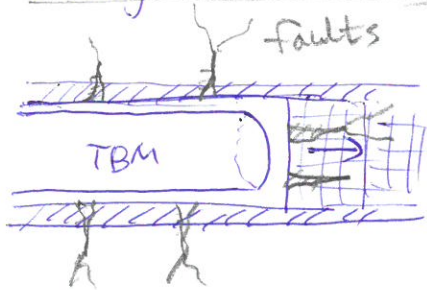


1. Setup

- state the problem. draw a picture.

Find leakages in Underground tunnel (faults)



2. Properties

- what are the diagnostic physical property contrasts?

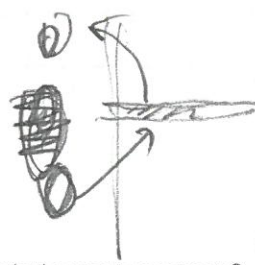
is it dispersive $\epsilon(\omega)$?

* dielectric constant

ϵ_r water - 80

cement grouting $\ll 80$

* electrical conductivity



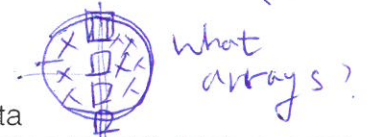
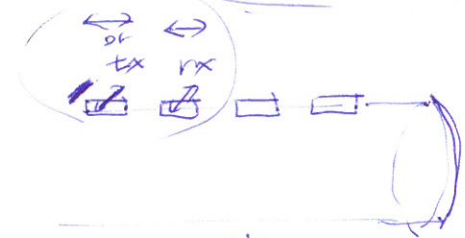
3. Survey

where are the sources? receivers? time domain? frequency domain? grounded? inductive?

Can we use EM?? (small loop)

Geopentrating radar.

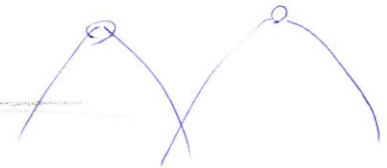
Crosswell (??)



4. Data

- what are the data? what do you expect to see?

GPR



EM



7. Synthesis

- how do we combine our interpretation with other knowledge about the problem and make a decision?

6. Interpretation

- what do the results tell us in terms of the geological or geotechnical objectives?

- 2D section?

5. Processing

- what steps should be taken prior to obtaining an interpretable image?

- Lots of noise from TBM.

