Incident with exposure to high dose rate

When the RP tech's instrument is faulty

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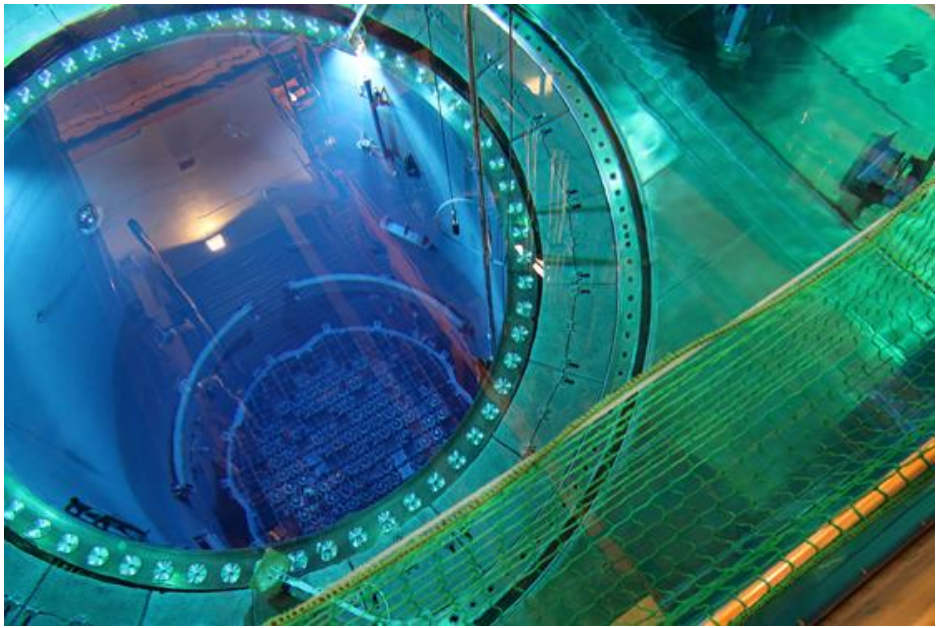
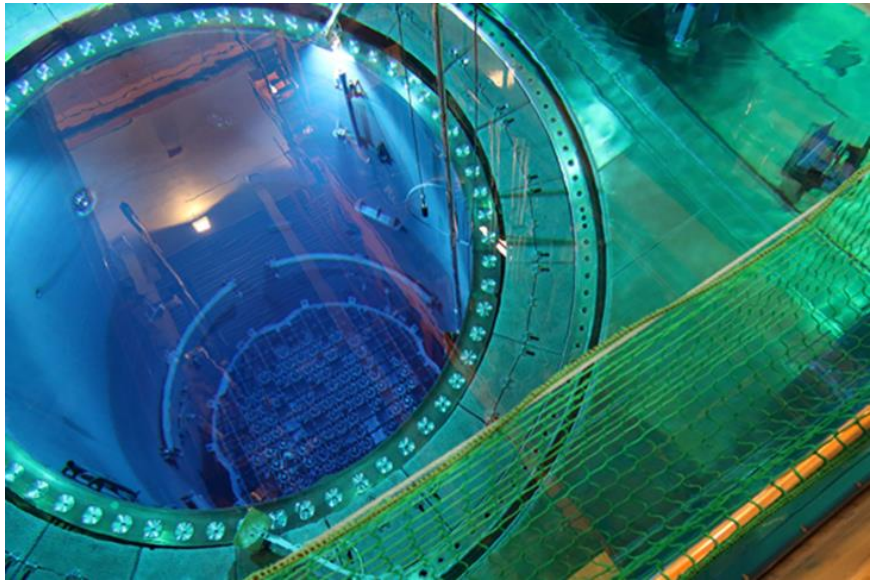
Agenda

1. Background
2. Instrument
3. Aftermath



Cleaning the cavity

- Friday afternoon, November 29, 2019, a routine job
- Changing the filterbag in the cleaning equipment has to be done manually.
- Highly experienced staff on all positions
- RP tech measuring dose rate with instrument

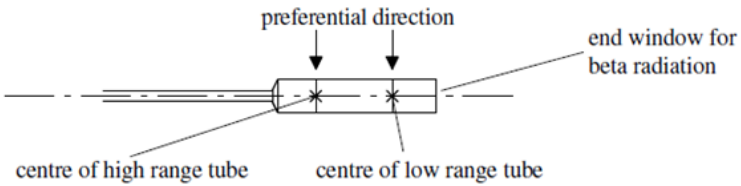


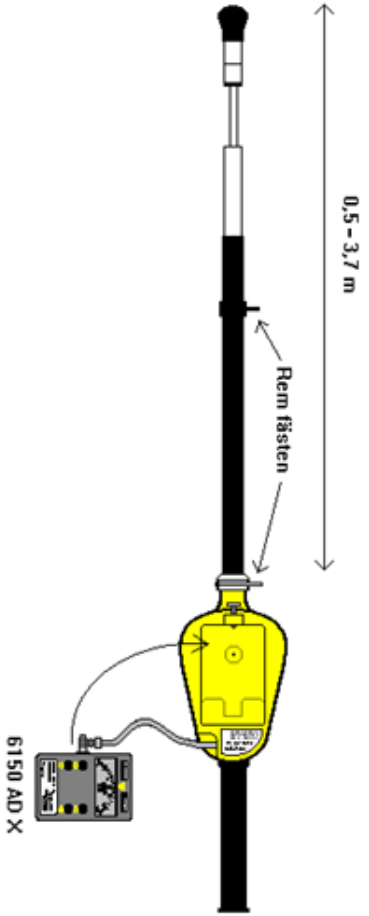
Instrument

The instrument

- Automess 6150 AD-t

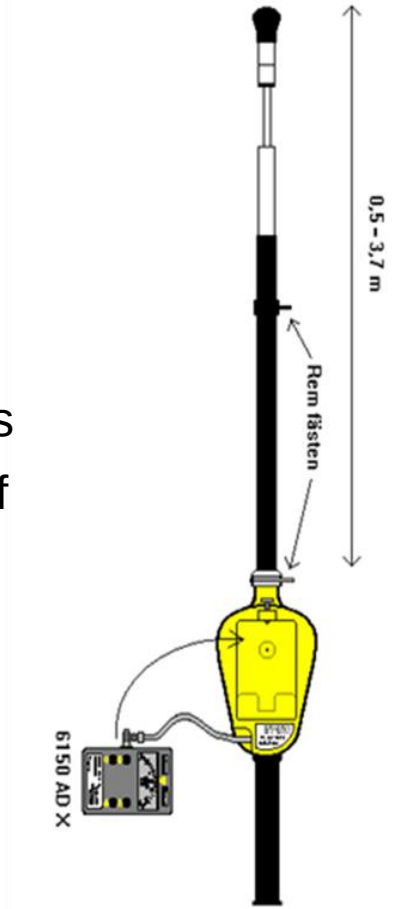
Measuring range:	0,1 µSv/h - 10 Sv/h Low range: 0,1µSv/h – 10mSv/h High range: 1mSv/h – 10Sv/h
Energy range:	65 keV - 1,3 MeV (low range tube) 65 keV - 3 MeV (high range tube)
Detector:	2 GM-tube, (ZP 1400 (LDR), ZP 1300 (HDR))





Deficiencies in the use of the instrument

- Function test before use, but only for the low dose rate tube
- We didn’t have a source to do a function test of the high dose rate tube, that was a known problem for many years
- RP tech used the instrument without full understanding of its properties.



Aftermath

- Highest individual dose was 1,70 mSv, well under our yearly limit of 20 mSv. Verified by both EPD and TLD.
- The same person got exposed to a dose rate of 1,73 Sv/h (EPD).
- Incident classed as INES 1 according to both Forsmark and SSM.
- Gamma spectronomy showed that Co-60 was the main source.

Aftermath

- Sources to do function tests of the high dose rate tube purchsed
- Reinforced training for RP technicians
- Sorting out old instruments that often need repairs
- A comprehensive review of questions regarding radiation protection in pre job breifings