



Cable deposits in Czech NPPs within cable ageing management program

Vladimír Hnát
(hna@ujv.cz)

Nuclear Research Institute Rez
Dpt. of Radiation Chemistry and Environmental Qualification

IEEE / IEC Meeting
Gathenburg, Sweden, June 13-17, 2011



Nuclear Research Institute Rez—location

Ústav jaderného výzkumu Řež a.s.



www.ujv.cz

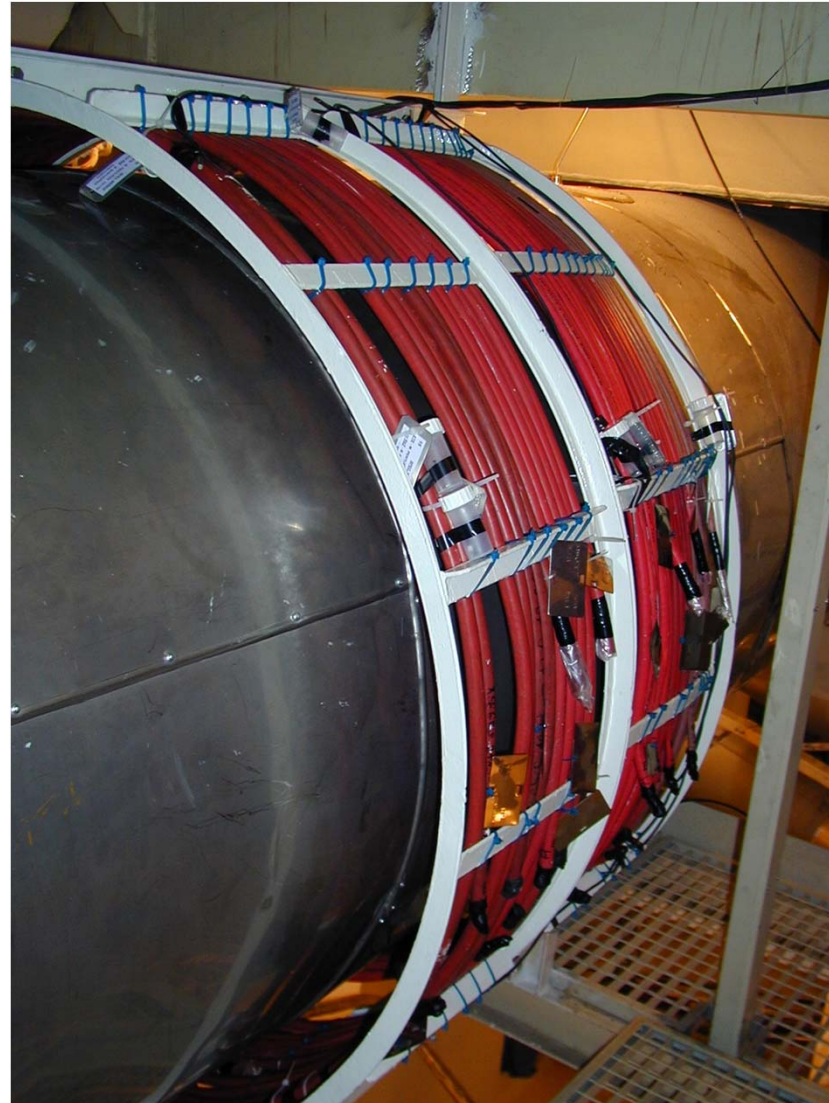
21.6.2011



Witness cable deposits in NPP Temelin

Ústav jaderného výzkumu Řež a.s.

**Cable deposit
in NPP Temelin**



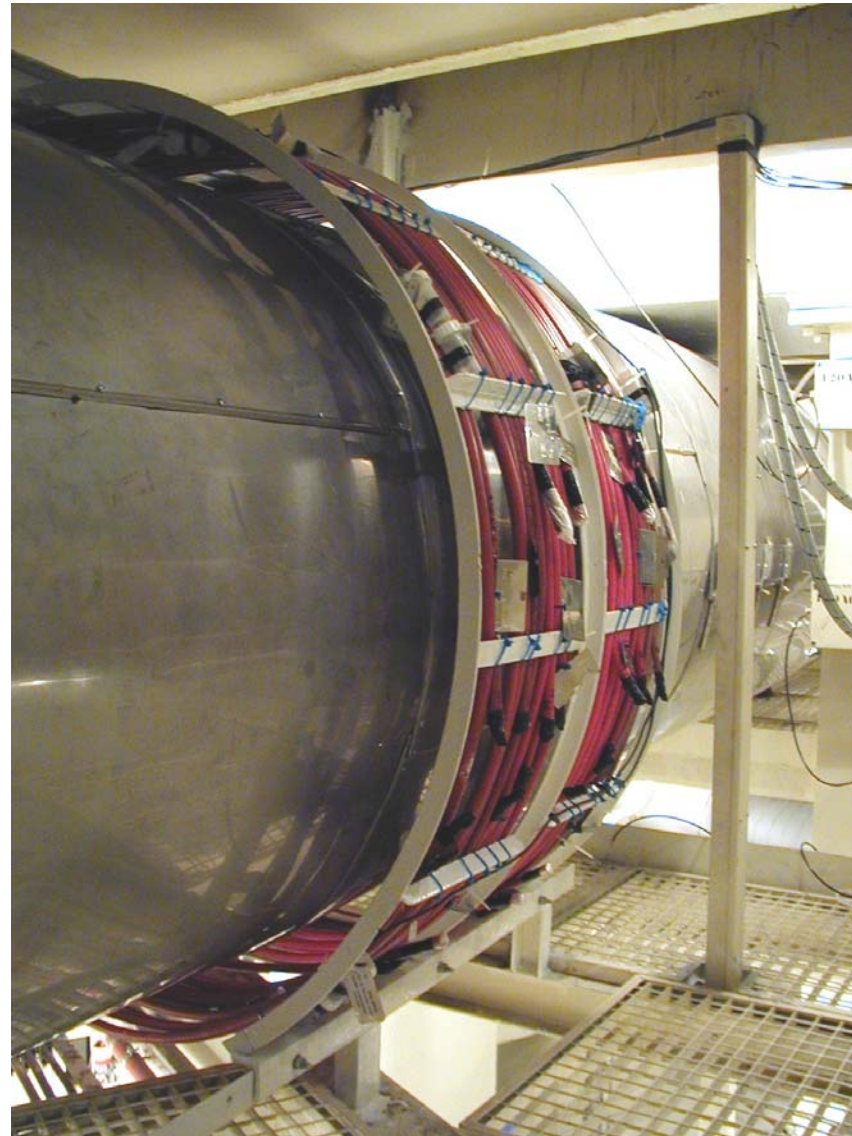


Witness cable deposits in NPP Temelin





Witness cable deposits in NPP Temelin





Cable deposits in Czech NPPs — overview

**NPP Dukovany (4 units of VVER 440 Mwe):
2 cable deposits,
the next deposit under construction**

**NPP Temelin (2 units VVER 1000 Mwe):
2 cable deposits (1 per each unit)**

Data acquisition

temperature (dataloggers)

humidity (dataloggers)

radiation (alanine, Ni, Co)

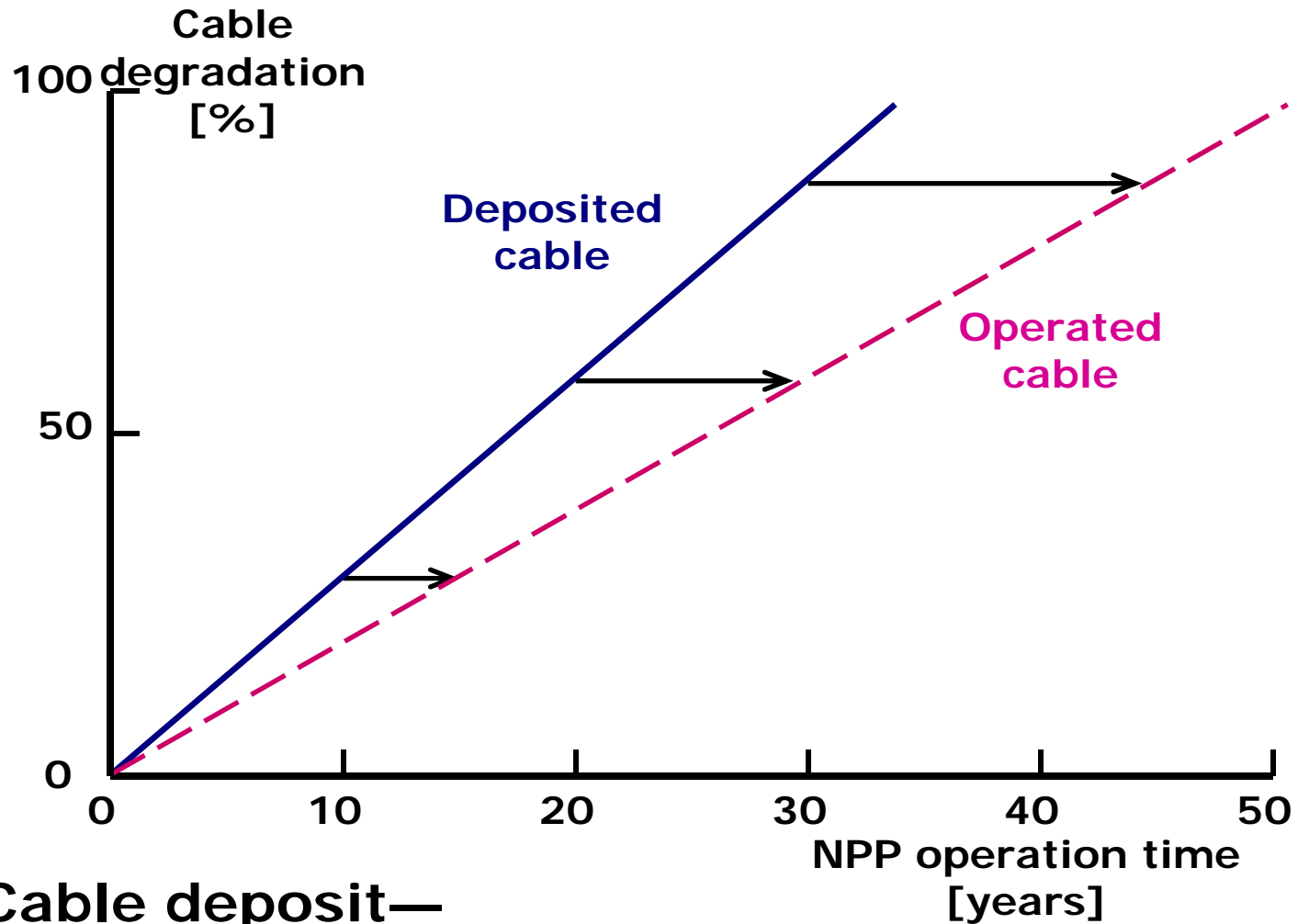
DataBase — centralized, for each unit



Cable Ageing Management Program

ageing acceleration in a cable deposit

Ústav jaderného výzkumu Řež a.s.



**Cable deposit—
ageing evaluation**



Limitations of accelerated ageing

The homogeneity of polymer degradation



a) air, 35 °C, 0.1 MPa



b) air, 45 °C, 0.1 MPa

Inhomogeneous degradation



c) Oxygen, 50 °C, 0,75 MPa

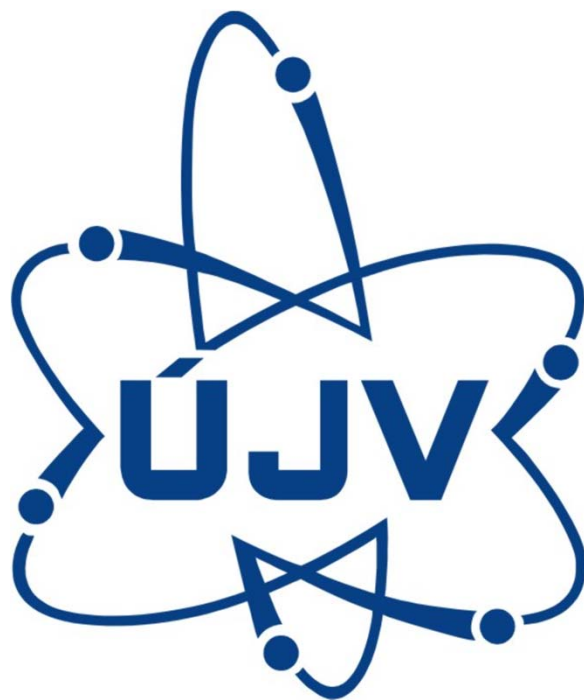
Homogeneous degradation

(ageing condition close to the real one)



Ústav jaderného výzkumu Řež a.s.

Thank you for attention



www.ujv.cz

www.ujv.cz

21.6.2011