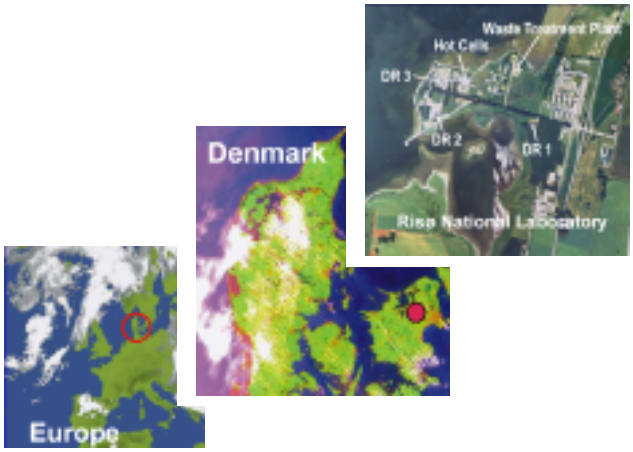
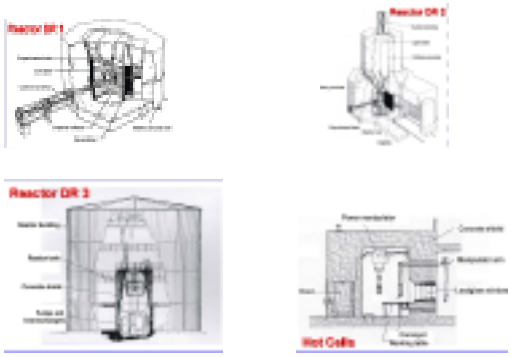
Decommissioning of the Nuclear Facilities at Risø National Laboratory in Denmark

Mogens Bagger Hansen, Risø National Laboratory, Knud Larsen, Danish Decommissioning, Denmark.



The Nuclear Facility at Risø



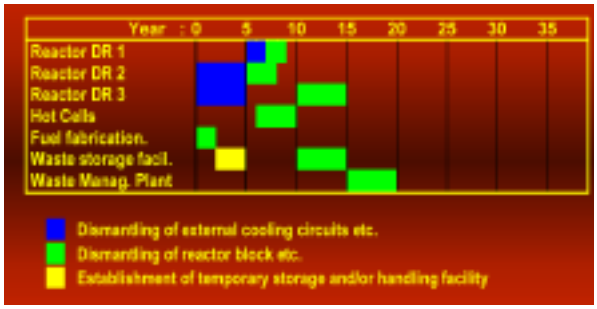
Activity inventories (year 2000)

Nuclear facility	β-γ-activity [GBq]	α-activity [GBq]
High-radiation waste	700,000	30,000
Low-level waste	4,800	-
Waste Management Plant	8,500	10
Reactor DR 3 (excl. fuel)	200,000	-
Hot Cells	3,000	100
Reactor DR 1 (incl. fuel)	100	5
Reactor DR 2	60	-
Heavy water (from DR 3)	3,000,000	-

National policy on Decommissioning

- The Danish Parliament has in 2003 approved decommissioning of the nuclear facilities at Risø
- The decommissioning is to be done by a new State Company named *Danish Decommissioning*
- The decommissioning is expected to be implemented over a period of 11-20 years
- The goal is to achieve “green field” at all facility sites

20 years scenario



Waste from decommissioning

Nuclear facility	Conditioned active waste [m³]	Inactive + nearly inactive waste [m³]
Reactor DR 1	2	200 + 1,000
Reactor DR 2	120	300 + 600
Reactor DR 3 complex	1,000	1,800 + 11,000
Small facilities	6	+ 10
Hot Cells	50	2,500
Waste Management Plant	50	100 + 3,600
In drums etc. (existing)	1,800	-
Total	3,000	5,000 + 16,000

Impact on the environment

Hypotetical releases during decommissioning – both routine and accidental releases – have been postulated and doses to critical groups assessed:

- routine releases of 1% of the inventory per year
- accidental releases of 1% of the inventory
- most likely weather conditions
- exposure from all exposure pathways including consumption of the contaminated food