



中国核能电力股份有限公司
China National Nuclear Power Co., Ltd.

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Practice of Solid Radwaste Classification and minimization in Qinshan NPP

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CNNC

National Classification of radioactive waste

Classification	Waste disposal
Very Short Lived Waste (VSLW)	Clearance after storage and decay
Very Low Level Waste (VLLW)	landfill disposal
Low Level Waste (LLW)	Near surface disposal
Intermediate Level Waste (ILW)	Medium depth disposal
High Level Waste(HLW)	Deep Geological disposal



Practice of Radioactive Solid Waste Classification in Operational NPP

Classification	Contents
Technical Waste	Used PPEs (gloves, shoes, shoe covers, coveralls, respirators) Worn out tools Discarding components Construction material Plastic sheets/bags Heat Insulation materials...
Processing Waste	Spent Resin Spent filters in purification system Spent filters in ventilation system Iodine adsorbers in ventilation system Concentration liquid form waste liquid treatment system Spent desiccant from heavy water vapor recovery system ...

Radioactive waste minimization approach

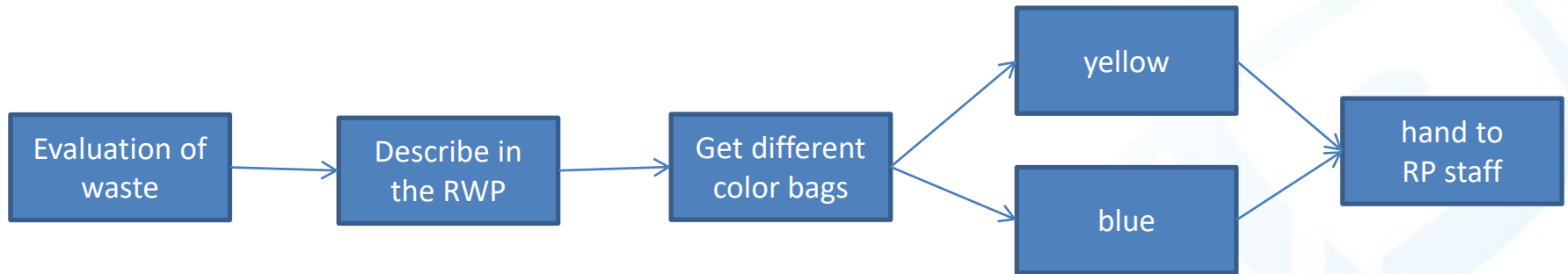
Technical waste

1. Repeated use of PPEs

including: cotton gloves, cotton shoe covers, air-supplied masks, plastic suits, etc

2. Identify and collect uncontaminated waste separately for future clearance

controlled by the Radioactive Work Permit



Radioactive waste minimization approach

Technical waste

3. Contaminated metal melting and recycling

$\beta \leq 40 \text{ Bq/cm}^2$ (could be accepted by the contaminated metal recycling facility)

$\beta > 40 \text{ Bq/cm}^2$ and contact dose rate $< 0.2 \text{ mSv/h}$

contact dose rate $> 0.2 \text{ mSv/h}$

4. Pretreat Combustible waste for incineration

cotton and paper, plastics and rubber, resins and hard plastics

Radioactive waste minimization approach

Processing waste

1. ventilation system filter

Metal frame---Apply for clearance

Filter----Conditioned as Low level waste

2. Iodine adsorbers

temporary store and clearance



Radioactive waste minimization approach

Processing waste

3. Spent resin

PWR: APG resin to be clearance, primary system resin –low level waste

PHWR: MOD—immediate level waste , PHT—low level waste

4. Filters in purification system

Low level waste

5. Concentration liquid

Low level waste

6. Desiccant

Very Low Level Waste

The proportion of radioactive waste after 15-year operation

Classification		Proportion (%)	
Processing waste	Spent resin		24.8
	Spent filters		12.0
	Residual material in the pit		0.1
	Spent filters of Ventilation system		2.8
	Desiccants		10.8
Technical waste	Compressible	PPE	43.3
		Insulation material	1.2
		Rubber material	1.1
		Dried Paper/ towels	0.9
		Others	0.4
	Incompressible	Metals	2.0
		Hydraulic pressure tube	0.6



中核核电运行管理有限公司

CNNC Nuclear Power Operations Management Co., Ltd.

汇报完毕，请各位专家提问

谢谢！

