



Nuclear Research Institute Řež plc

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Remediation of Old Environmental Liabilities in the Nuclear Research Institute Řež plc

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INTRODUCTION

- ❑ Nuclear Research Institute Řež plc (NRI) - a leading institution in the area of nuclear R&D in the Czech Republic since 1955
- ❑ Operates
 - **two research nuclear reactors**
 - **hot cell facility, research laboratories**
 - **technology for radioactive waste (RAW) management**



INTRODUCTION (cont'd)

- ❑ After more than 50 years of NRI's activities, there are many environmental liabilities
- ❑ The only active decommissioning project in the Czech Republic
- ❑ Inventory of contaminated technology – approx. 1500 m³ of RAW
- ❑ Remediation is being performed by NRI with assistance of external contractors



PROCEDURE OF REMEDIATION

- Characterization of environmental liabilities (1996 – 2000)
- Preparation of project of remediation (2002)
- Start of remediation (2003)
- Remediation of the environmental liabilities will be finished in 2014.



DESCRIPTION OF SELECTED ITEMS

- ❑ There are 14 items of liabilities, 7 items already finished
- ❑ Typical items will be described
 - **Old RAW treatment technology (Building 241)**
 - **RAW stored in the Reloading site (Building 211/6)**



Old RAW treatment technology

- ❑ Evaporator and auxiliary technology (heat exchangers, storage tanks)
- ❑ Procedure of remediation
 - **Decontamination and dismantling of the technology (2004 – 2010)**
 - **Processing of RAW**



Old RAW treatment technology (cont'd)

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Evaporator



Old RAW treatment technology (cont'd)



Heater after opening



Old RAW treatment technology (cont'd)



Heater before dismantling



Old RAW treatment technology (cont'd)



Heat exchanger tubes before segmentation



Old RAW treatment technology (cont'd)



After evaporator decommissioning



Old RAW treatment technology (cont'd)



Sedimentation tank with volume of 25 m³



Old RAW treatment technology (cont'd)



Sedimentation tank - interior



Old RAW treatment technology (cont'd)



Segmentation of sedimentation tank



Old RAW treatment technology (cont'd)

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Segmentation of sedimentation tank



Old RAW treatment technology (cont'd)



Segmentation of sedimentation tank



Old RAW treatment technology (cont'd)

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Storage tanks



Old RAW treatment technology (cont'd)



Storage tank before segmentation



Old RAW treatment technology (cont'd)

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Storage tank during segmentation



RAW stored in the Reloading site (Building 211/6)

- ❑ Site for temporary storage of RAW (approx. 600 m³)
- ❑ Procedure of remediation (2004, 2008 – 2012)
 - **Construction of a hall with a crane and auxiliary technology (2004)**
 - **Sorting and transport of RAW for processing**
 - **Processing of RAW**
 - **Disposal or release of RAW into the environment**



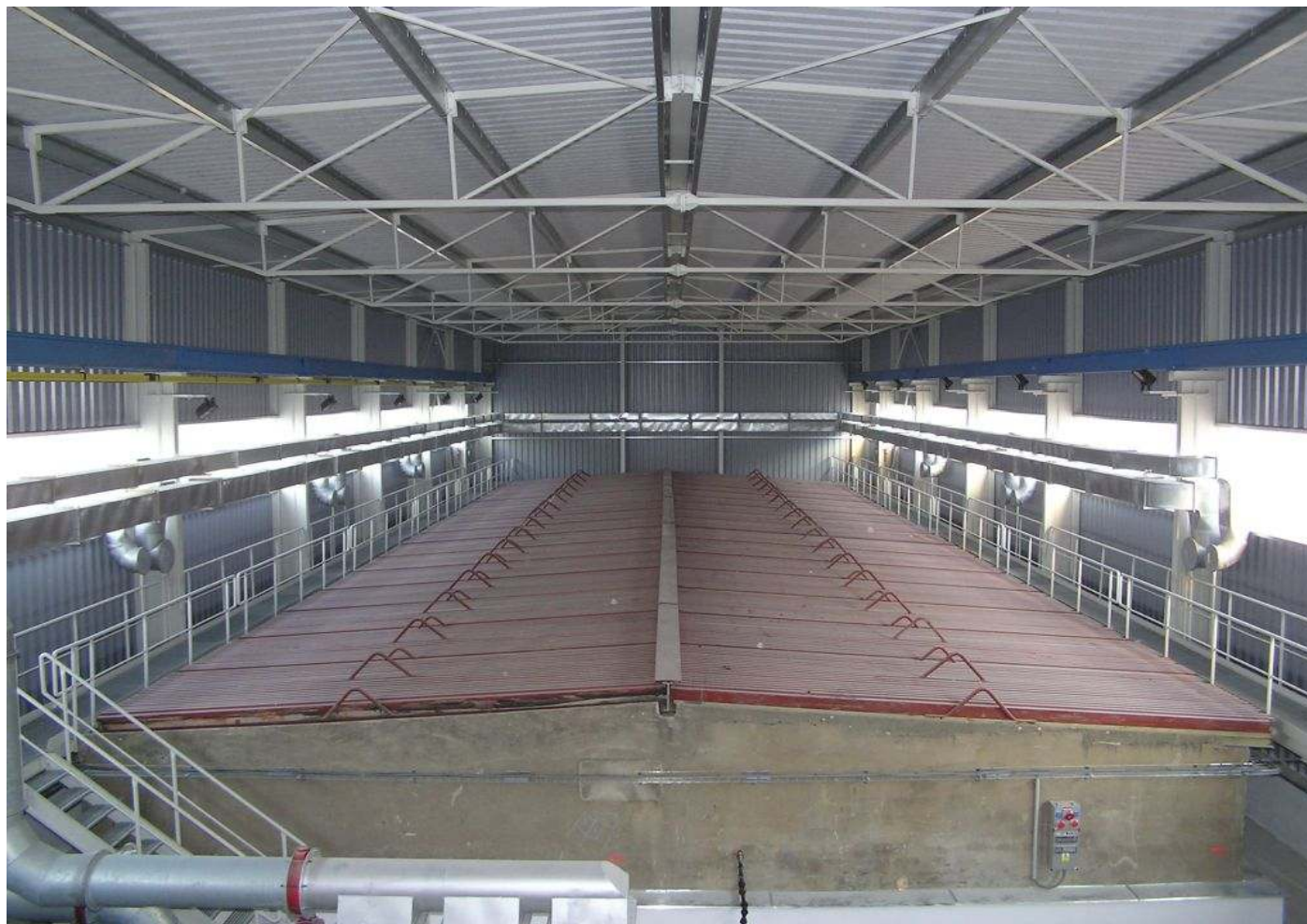
RAW stored in the Reloading site (cont'd)



Reloading site



RAW stored in the Reloading site (cont'd)



Reloading site after construction of a new hall



RAW stored in the Reloading site (cont'd)

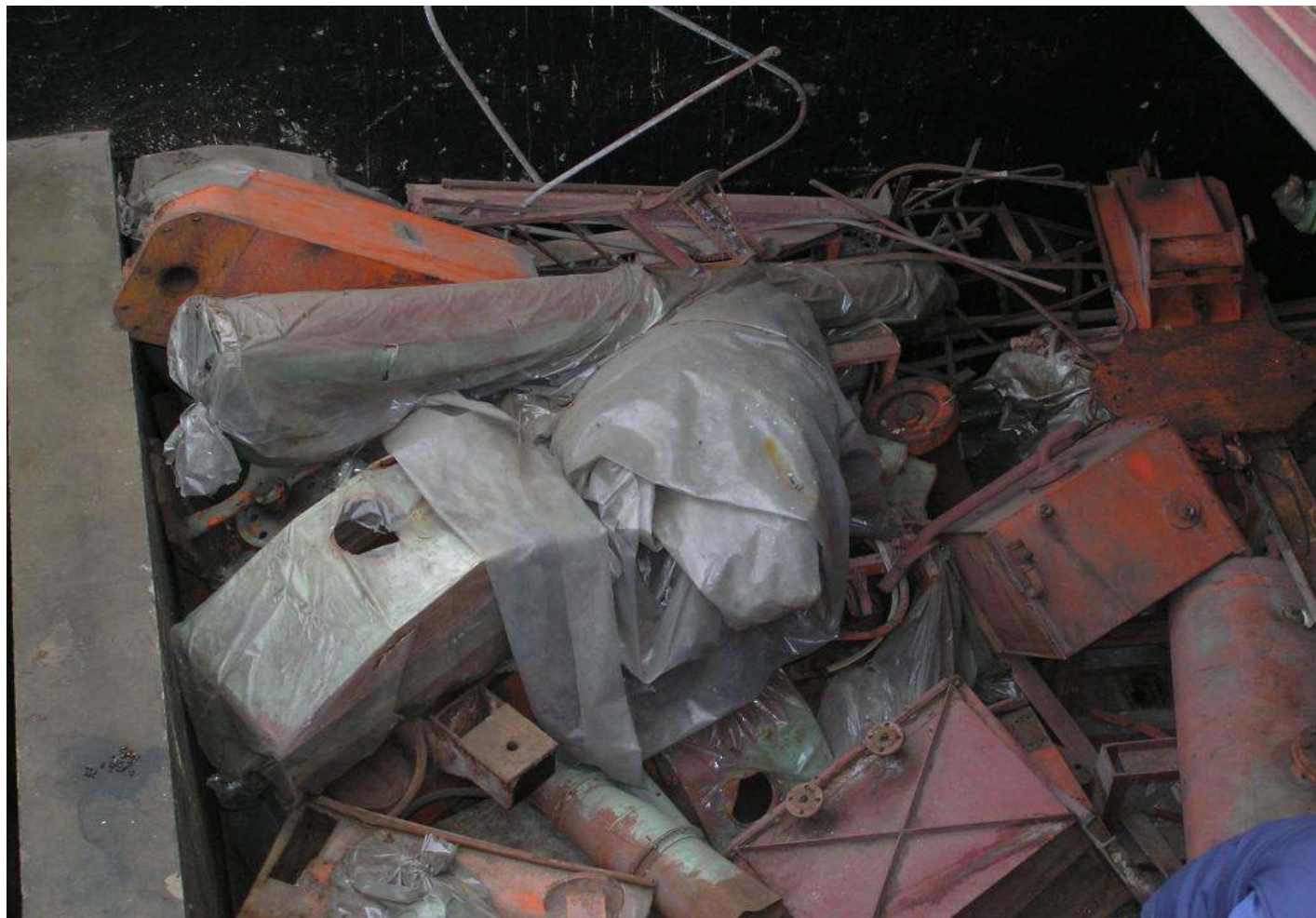


Stored RAW



RAW stored in the Reloading site (cont'd)

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Stored RAW



RAW stored in the Reloading site (cont'd)

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Stored RAW



RAW stored in the Reloading site (cont'd)



Stored sources



RAW stored in the Reloading site (cont'd)



Stored RAW – VVR-S research reactor vessel

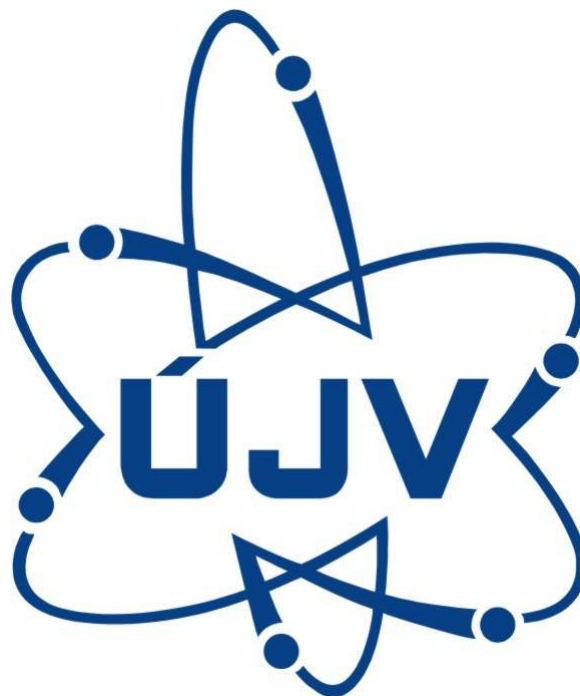


CONCLUSION

- ❑ The character of the environmental liabilities is very specific and requires special remediation procedures.
- ❑ Optimal procedures and technology for decommissioning of old environmental liabilities has been proposed and is being used.
- ❑ The remediation is being carried out on high level of radiation protection of workers and environment and without accidents.



Thank you for your attention



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