

## Decommissioning in the Czech Republic

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*Decommissioning of nuclear installations must be tackled both comprehensive and also specifically with regard to conditions specific applications. In some states and some localities are required decommissioning of nuclear installations to the level of so-called Greenfield, it includes a complete release of the site.*

### **What we do? We solve following issues:**

- strategy for the decommissioning process,
- descriptions and selection of variants, descriptions of the various stages of decommissioning,
- specification of technological equipment and buildings, site description, prognosis of operational data,
- database design data and documents relevant for the processing of other stages of documentation of decommissioning,
- postulate of input data (radioactivity and hazardous substances, liquid and solid radioactive waste, etc.),
- contamination of surfaces technology equipment, building parts and the atmosphere, radionuclide composition of the radioactive waste,
- evaluation of period of decommissioning,
- balance, methodology and evaluation of activities during the decommissioning (pre-decontamination, dismantling, post-decontamination, demolition, processing and treatment of RAW, inactive waste disposal, waste release into the environment),
- solution the radiating control during the decommissioning - program monitoring,
- evaluation of radiological protection of workers and the impact on the environment, analysis of radiological events,
- physical protection assurance during the decommissioning,
- organization the decommissioning project - schedule, staffing works, ensure emergency planning during the decommissioning,
- the economic evaluation of all the above activities,
- safety assessment for decommissioning.

### **Used software tools**

- Microsoft Excel, Project, Access

- KROS plus – tool for creating budgets, cost calculation of works with complete price system including demolition works.

**Figure 1: Work area display of the database for decommissioning**

The screenshot shows the 'Struktura nákladů ISDC' (ISDC Cost Structure) interface. On the left is a tree view of activities, with '07.0303.01 Demontáž komínů' selected. The main panel displays details for this activity, including its title, description, and duration. Below this is a table of labor costs.

Profession	Amount	Labour intensity	Dose	Note
Dělník	1	<<V>> * 0,55*0,522	0	Labourer
Dozer 86kW	1	<<V>> * 0,55*0,0879	0	
Kompresor pístový 5,76m <sup>3</sup>	1	<<V>> * 0,55*0,0904	0	Piston kompresor
Kropičí automobil	1	<<V>> * 0,55*0,104	0	Sluicing car
Technik	1	<<V>> * 0,55*0,205	0	Skilled worker
	(Povinný)	(Povinný)	0	

The STANDARD International Structure for Decommissioning Costing (ISDC) of Nuclear Installations

## References

- NPP Jaslovské Bohunice A1 (heavy water reactor KS-150 type) - Study of Decommissioning,
- NPP Jaslovské Bohunice V1 (2 reactors of WWER 440/V230 type) - Study of Decommissioning,
- NPP Dukovany (4 reactors of WWER 440/V213 type) – Decommissioning Concept including cost estimate,
- NPP Temelín (2 reactors of WWER 1000/V320 type) - Decommissioning Concept including cost estimate,
- Temelín and Dukovany Spent fuel storages (dry storage) - Decommissioning Concept including cost estimate,
- Research reactor LVR-15 (light-water moderated and cooled tank nuclear reactor with forced cooling) - Decommissioning Concept including cost estimate,
- Research reactor LVR-0 (same design as the WWER type power reactor, 5kW thermal power) - Decommissioning Concept including cost estimate,
- Remediation of Old Environmental Liabilities in ÚJV Řež, a. s. - characterization of environmental liabilities, preparation of project of decommissioning including cost estimate,
- Safety Assessment for decommissioning of China research reactor HWRR (heavy water research reactor, 15 MW thermal power),
- Safety Assessment of NPP Dukovany for decommissioning.