



Decommissioning in Slovakia

Anton Masár
JAVYS, a.s.
Slovak Republic

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Jadrová a vyrad'ovacia spoločnosť, a.s.

**Decommissioning activities in Slovakia were transferred into JAVYS, a.s.
Jadrová a vyrad'ovacia spoločnosť, a.s. (*Nuclear and decommissioning company*)**

It is a 100% state owned company (Plc.). The Ministry of Economy of the Slovak Republic is the only JAVYS, a.s. shareholder.

JAVYS, a.s. activities:

- ✓ **Decommissioning:** **A1 NPP decommissioning (HWGCR, 1 unit, KS-150)
V1 NPP decommissioning (PWR440, 2 units, V-240)**

- ✓ **RAW management:** **Technologies for RAW processing and treatment
Final processing of liquid radioactive waste
RAW management
National RAW repository**

- ✓ **SF management:** **Interim spent fuel storage**

- ✓ **Institutional RAW and detected radioactive material (RAM) management**



NPP A1



NPP V1

**Electricity production
(under decommissioning)**



**Final Processing
of Liquid RAW**



**RAW Treatment and
Conditioning Facilities**



**National RAW
Repository**



**Interim Spent Fuel
Storage (wet)**

RAW and SNF management

A1 NPP decommissioning programme

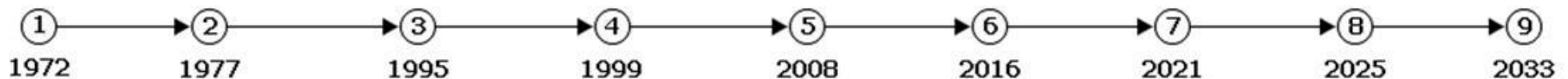
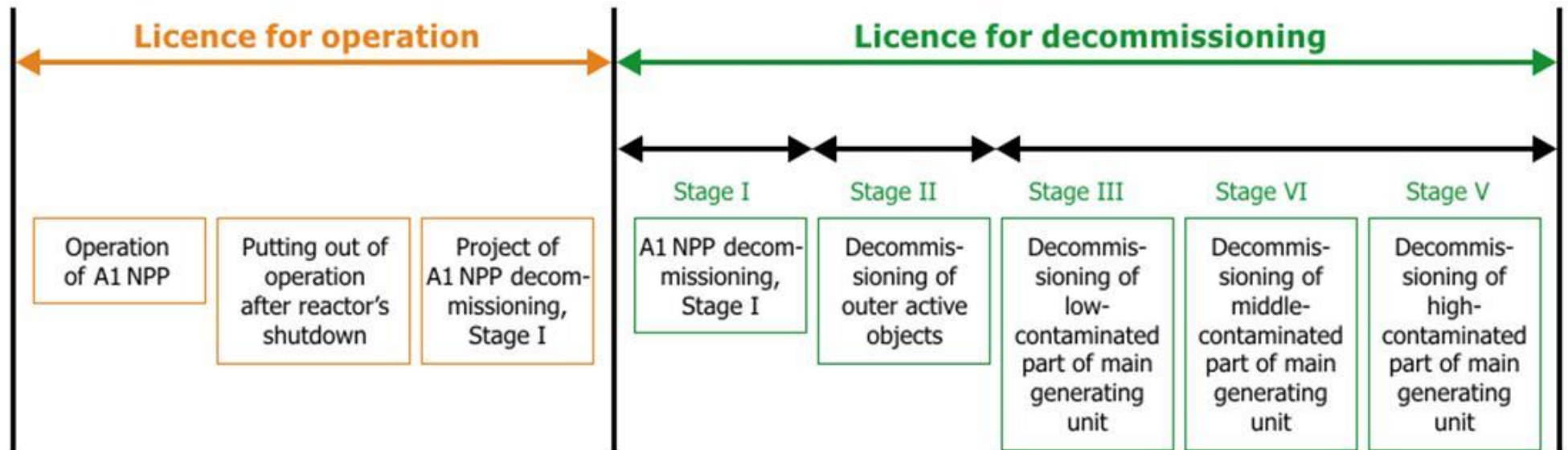
A1 NPP was operated in period of 1972 – 1977. In 1976 and 1977 two major operational accidents (INES 4) occurred after which the operation was stopped and A1 NPP was effectively put into decommissioning phase

Stage I - Radiation Safety Status

Stage II - Decommissioning of external active objects and low contaminated parts of the Main Production Unit

Stage III - Continuation of decommissioning of low contaminated parts of the Main Production Unit

Stage IV and Stage V - Decommissioning of intermediate contaminated parts of the Main Production Unit



A1 NPP decommissioning programme

Main issues in A1 NPP decommissioning :

- **Establishment of legislation framework for decommissioning activities**
- **Build-up of technical infrastructure**
 - **RAW treatment facilities**
 - **RAW storage capacities**
- **Financing of decommissioning activities, National Nuclear Fund from 1996**



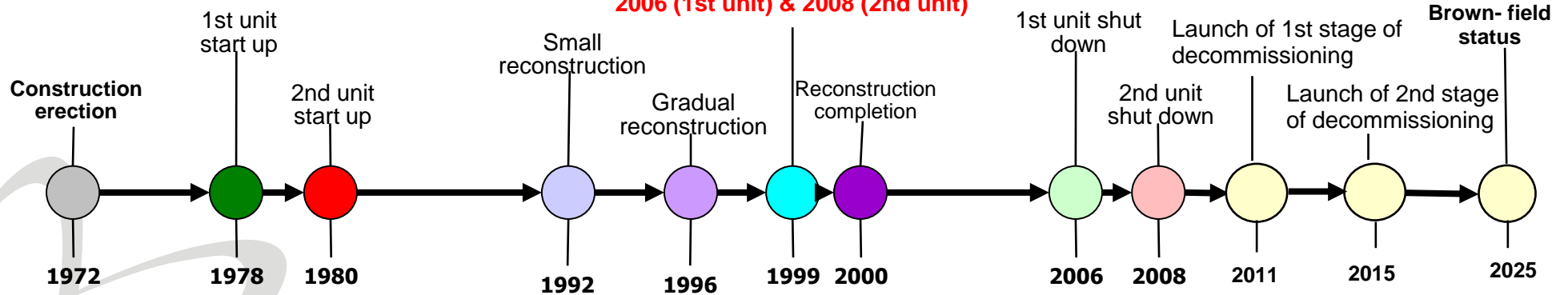
Bohunice NPP V1 Decommissioning



2 x WWER 440-V230
Fuel: UO₂ (2,5% U-235)
Moderator: H₂O
Coolant: H₂O
Loops: 6
Turbines: 2x220MW
Units/NPP: 2



Governmental decision 801/1999 about pre-mature shut down of the NPP V1 2006 (1st unit) & 2008 (2nd unit)



Bohunice NPP V1 Decommissioning

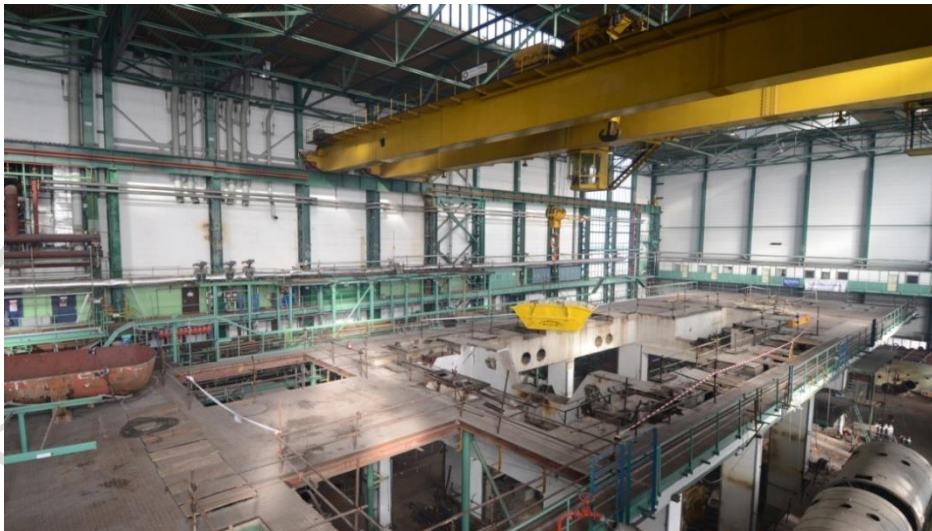
Turbine Hall dismantling



TG 22 before dismantling



TG 22 after dismantling



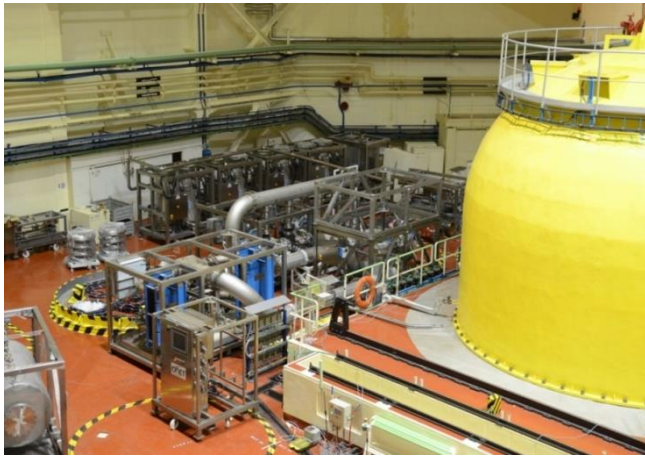
TG 22 support construction before



TG 22 support construction after

Bohunice NPP V1 Decommissioning

Decontamination of primary circuit



V1 NPP decommissioning programme

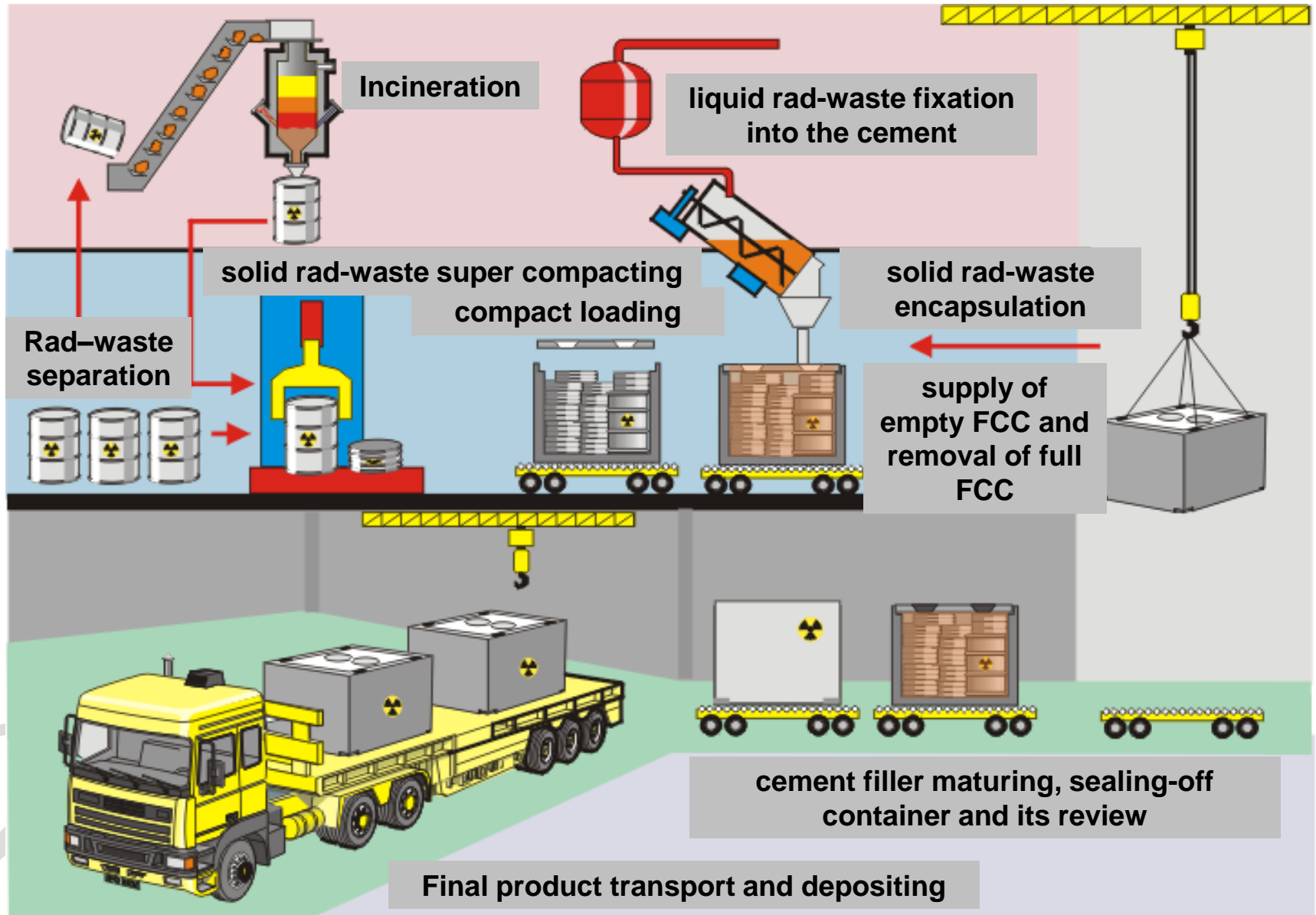
Current state & issues in V1 NPP decommissioning :

- **Licence for Stage 2 decommissioning activities from 2015**
- **Build-up of technical infrastructure**
 - **New Interim RAW storage facility in Bohunice**
 - **Extention of RAW storage capacities in Mochovce for VLRAW**
- **Combined financial sources for decommissioning**
 - **Financing from EU sources through EBRD – BIDSF fund,**
 - **National Nuclear Fund**
 - **Slovak Energy & Innovation Agency to administer EU funding from 2015**

- separation
- incineration
- super compacting
- concentration
- cementation



Bohunice Rad-waste Treatment centre



Final repository of low and intermediate level RAW designed for 6 double-rows

Repository of surface type



Spent fuel management

Facility for safe management of spent nuclear fuel from VVER 440 type nuclear reactors. Maximum designed storage capacity is 14 112 pcs of fuel elements to be achieved by 2022.

Construction: 1983 - 1987
Operation since: 1987

Plans for extension of current storage capacity to be in place from 2023



Results in Decommissioning Area

	1993		2014	
Legislation frame	✗	Czechoslovakia split	✓	EU norms implemented
NRA	✗	Established 1.1.1993	✓	IAEA member
Financial resources	✗	Limited – State Decom. Found established in 1994	✓	National Decom Fond, BIDSF, EU funds
Human resources	✗	Limited	✓	16 years of operation
Experiences	✗	Limited	✓	16 years of operation
RAW treatment technologies	✗	Limited (pretreatment)	✓	In operation
LLW/ILW disposal	✗	site selection	✓	In operation
RAW transport equipments	✗		✓	In operation
SF interim storage	✓	In operation	✓	In operation-ext. capacity
SF reprocesing plant	✗		✗	
HLW deep geological final repository	✗		✗	Deep geological program for 2013 - 2062



Further plans

JAVYS has an ambition to cover the whole spectrum of decommissioning and RAW, SNF management activities:

By legislation established as a national decommissioning entity

Practical experiences in planning and realisation of NPP's decommissioning and RAW management,

Providing complex services in RAW management - operation of all required facilities for RAW pretreatment, treatment, transport and final disposal of LLW/ILW (solid, liquid, burnable, compactable),

Sufficient installed capacity for RAW treatment,

Qualified staff (830 employees),

Government and public support