

Decommissioning Project of A1 NPP – Phase I



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IDN Annual Meeting, IAEA HQ, Vienna, 3-5 November 2008

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 - Technical Support

Introduction

Experimental nuclear power plant A1 was first Czechoslovak NPP in Jaslovske Bohunice site

- 1972 Commissioning of the A1 NPP (KS-150 HWGCR)
- 1976 First accident during refuelling
- 1977 Second accident with core melting
- 1979 Termination of plant operation



Preparatory Phase of the A1 NPP Decommissioning

Initial period of the A1 NPP decommissioning (1980 – 1994):

- Management of spent fuel
- Disassembly of certain systems and civil construction structures
- Improvement of the technology for radwaste treatment and conditioning



A1 NPP Decommissioning – Phase I

- General supply by VUJE in 1996 – 2007 including management of damaged spent fuel (1996 – 1999)
- Achieving radiation safe conditions of Bohunice A1
- Treatment and conditioning of RAW generated
- Restoration and innovation of various D&D technologies, processes and information systems providing improvement of working conditions for A1 personnel and environmental protection
- Preparation of conditions for A1 decommissioning – Phase II
- Costs: approximately USD 300 million
- Customer: Slovak Electricity Utility, from 2006 it is state company JAVYS (Nuclear and Decommissioning Company)

A1 NPP Decommissioning – Phase I

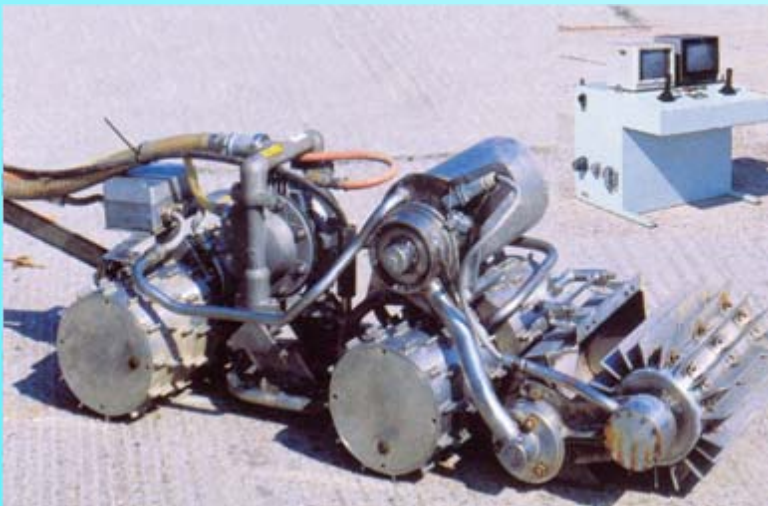
Project tasks:

- Management of damaged spent fuel assemblies (1996 – 1999)
- Environment
- Main Generation Building
- Radwaste Treatment and Conditioning
- Technical Support



Environment

- Cleaning and decontamination of underground storage tanks
- Decontamination and dismantling of equipment in the building of cleaning station of waste water
- Treatment and conditioning of contaminated soil
- Reconstruction and replacement of liquid RAW drainage system

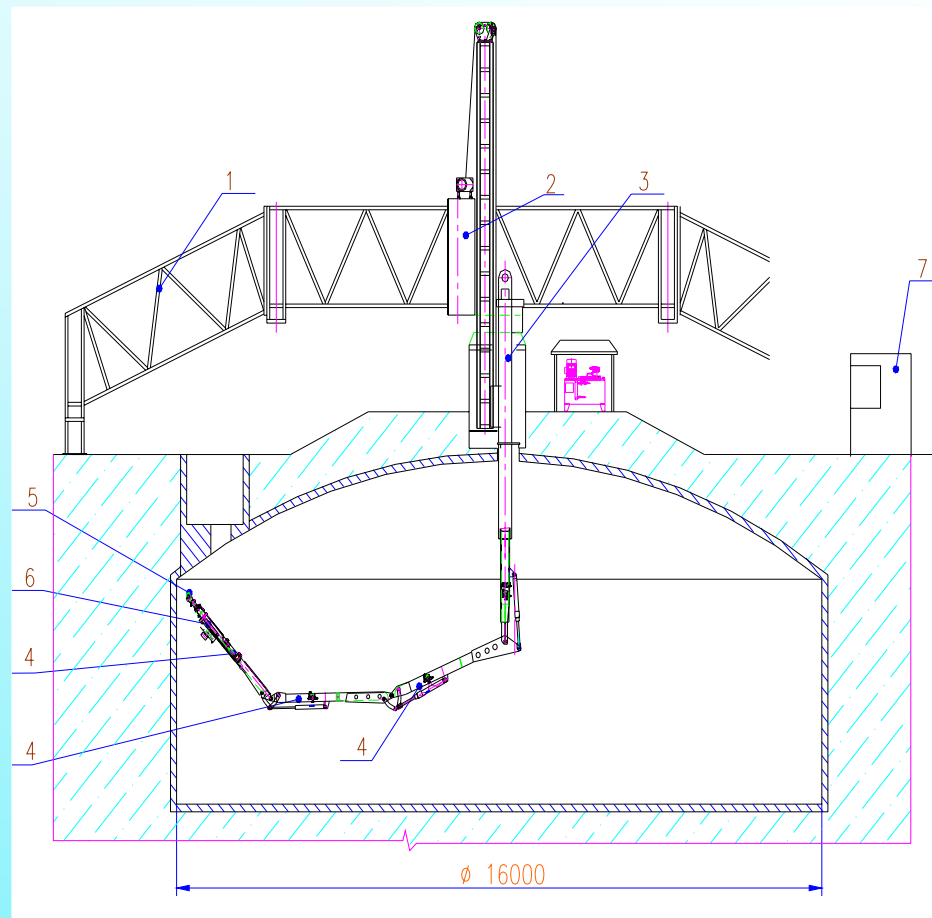


Environment



Description of DENAR-41:

1 – bearing construction, 2 – vertical unit,
 3 – telescopic mast, 4-6 – adjustable
 robotic arm with TV system + retrieval and
 D&D tools, 7 – control unit



Main Generation Building

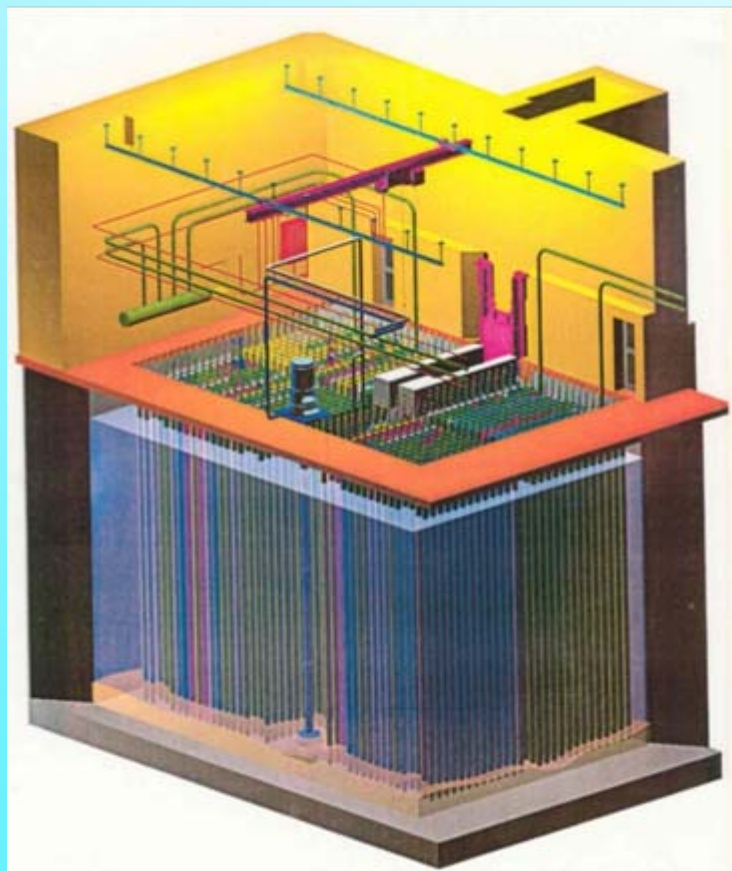
- Decontamination and dismantling or modification of:



- Spent fuel storage facilities
- Hot cell
- Spent fuel manipulation and transportation system
- Surface of civil structures and technology equipment

- Reconstruction and replacement of pressurised air and cooling water system

Main Generation Building

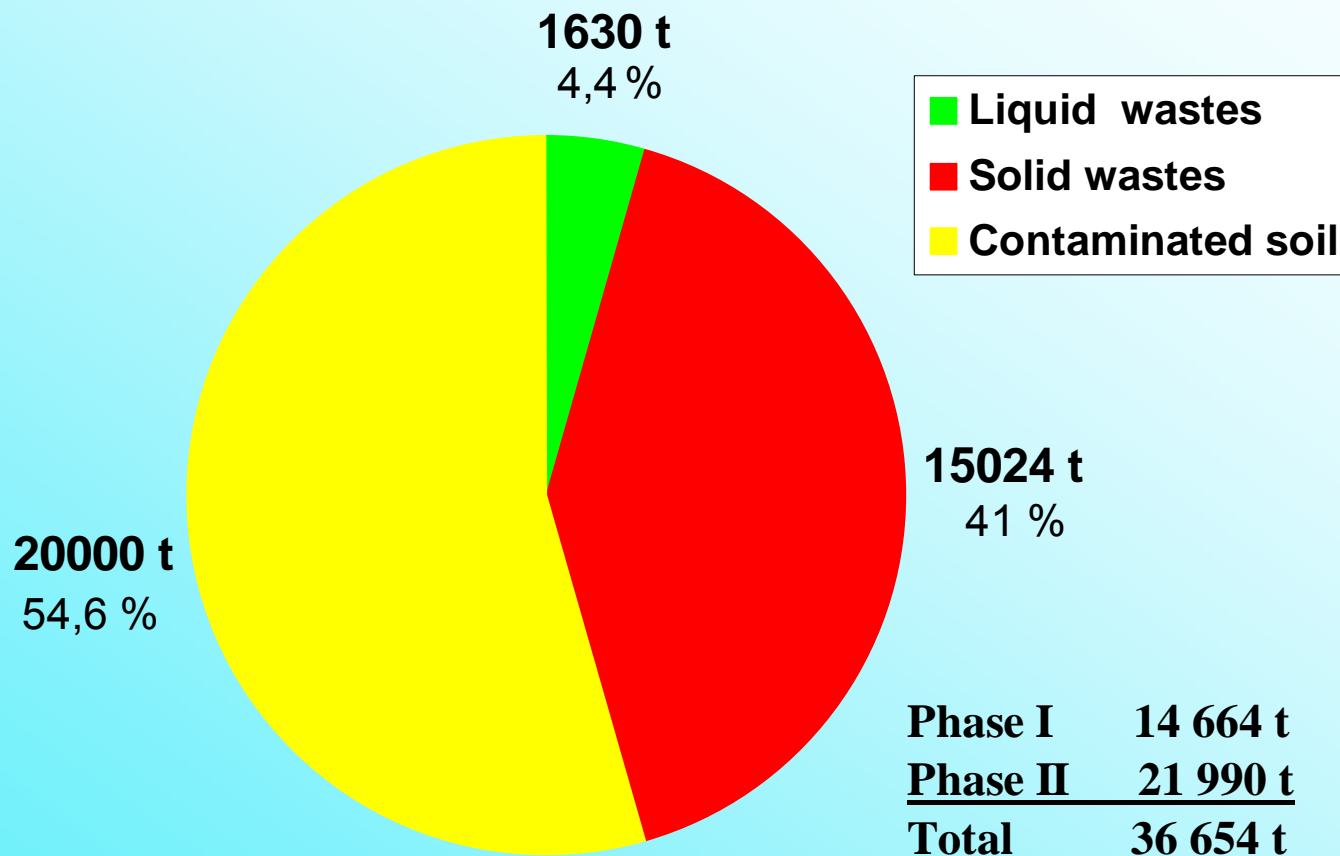


Long-term spent fuel storage pool



High-capacity decontamination facility

Radwaste Treatment and Conditioning

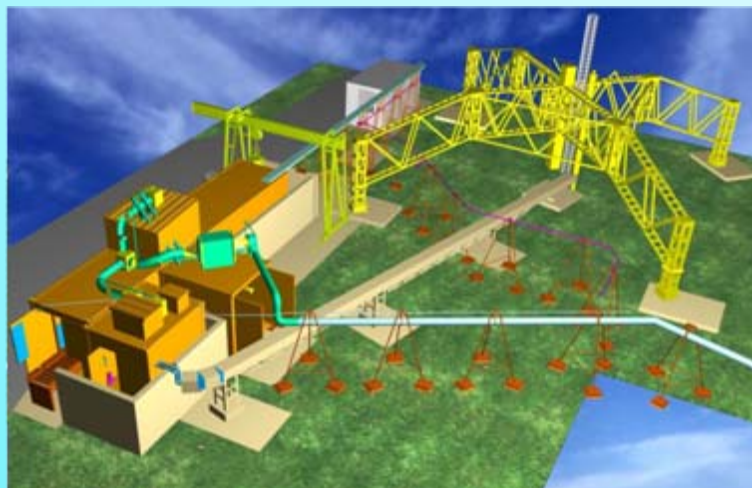


Radwaste Treatment and Conditioning

- Development of technology or procedures for treatment and conditioning of sludges, contaminated soils and concrete crush, saturated sorbents and ash
- Processing of special cooling and storing media
- Management of metal radwaste



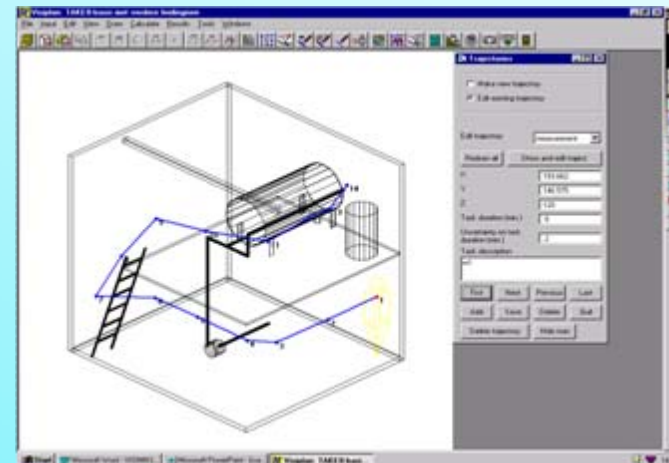
Radwaste Treatment and Conditioning



In-situ Movable Facility for Radioactive Waste Treatment ZFK

Technical Support

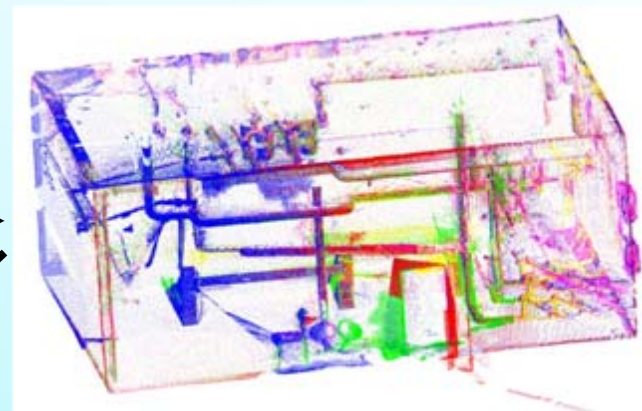
- Methodology for the evaluation and selection of the most suitable option for the decommissioning of nuclear facility (code OMEGA)
- The database for decommissioning of nuclear facility
- Technology and equipment for the decontamination and dismantling of civil structures and technology equipment
- Radiation protection of personnel and of the environment during decommissioning of the nuclear facility and waste management



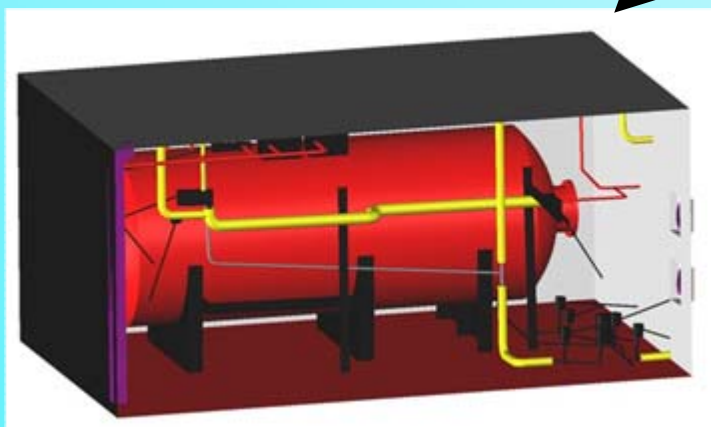
Technical Support – 3D laser scanning



Preparation of scanning plan



Scanning – output from the scanner is cloud of points

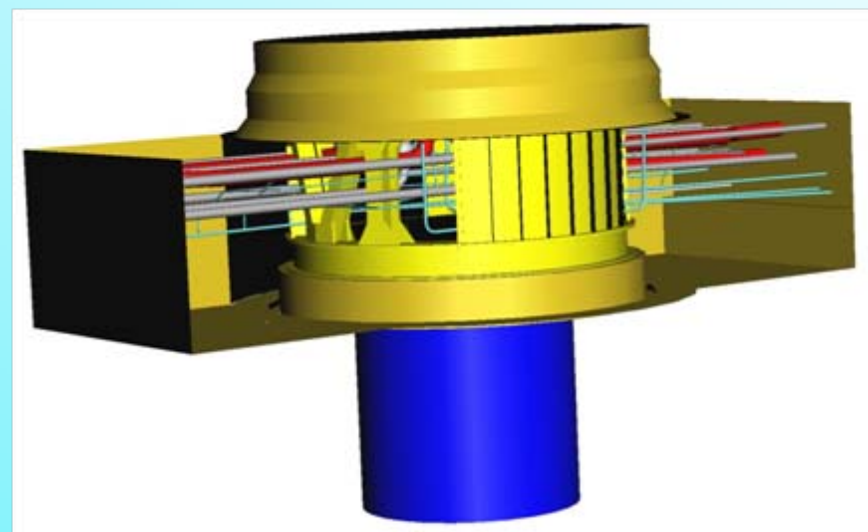
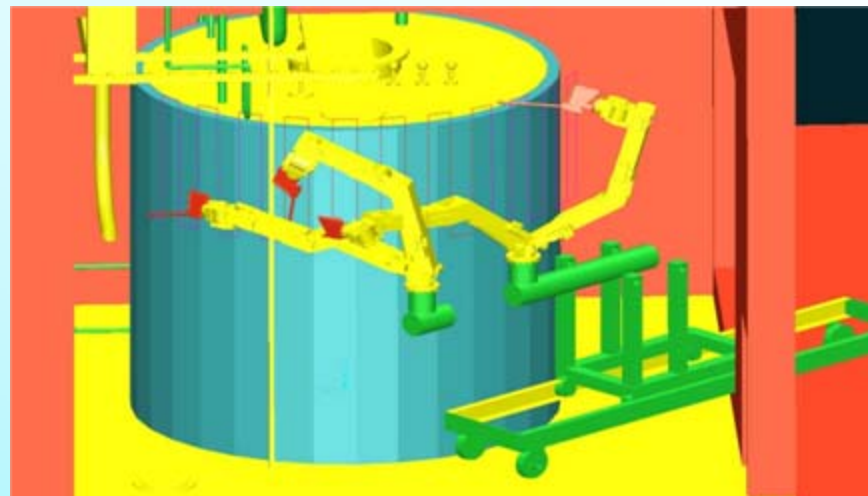
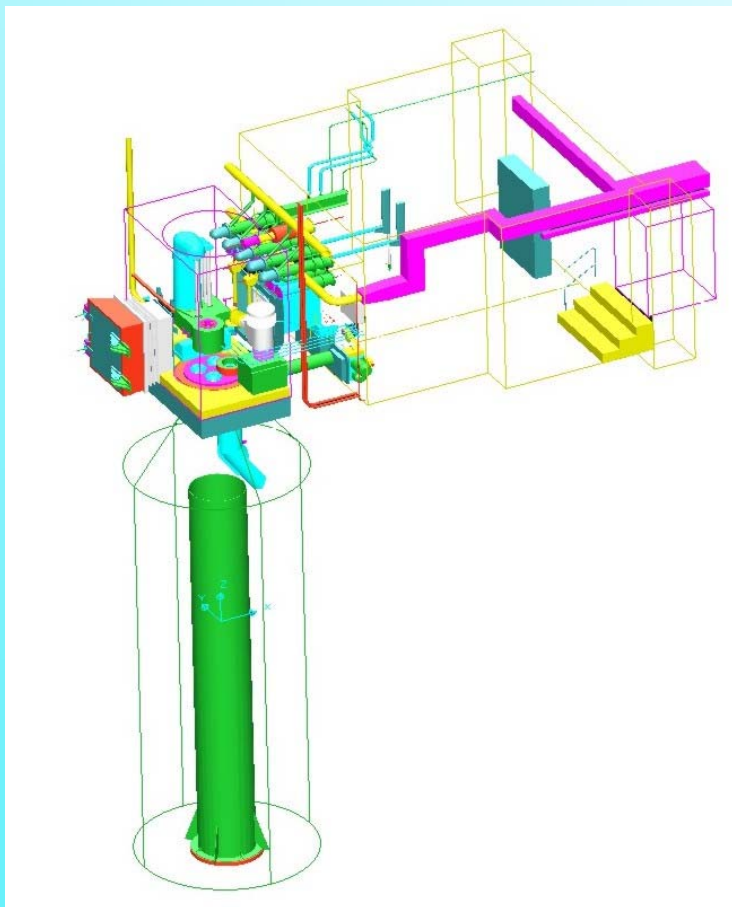


3D as-built modelling



Scanners in controlled area

Technical Support – 3D modelling



Thank you for your attention

