

RADIOLOGICAL CHARACTERIZATION OF V1 NPP TECHNOLOGICAL SYSTEMS AND BUILDINGS - CONTAMINATION

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Since 2001, the preparation of V1 NPP practical decommissioning has been supported and partly financed by the Bohunice International Decommissioning Support Fund, under the administration of the European bank for Reconstruction and development. AMEC Nuclear Slovakia, together with partners STM Power and EWN GmbH, performed BIDSF B.4 project – Decommissioning database development. The main purpose of the B6.4 project was to develop a comprehensive physical and radiological inventory database to support RAW management development of the decommissioning studies and decommissioning project of Bohunice V1 NPP. AMEC Nuclear Slovakia was responsible mainly for DDB design, planning documents and physical and radiological characterization including sampling and analyses of the plant controlled area.

The objective of V1 NPP radiological characterization was summarization of sampling and analyses results, description of methodology used for radiological characterization and determination of the V1 NPP radiological inventory. Results of the characterization survey included the identification and distribution of contamination in buildings, structures, and other site facilities or other impacted media. The characterization survey clearly identified those portions of the site that have been affected by site activities and are contaminated. The survey also identified the portions of the site that have not been affected by these activities and can be marked as “not impacted”. Radiological data have been presented also on the basis of index RAI level, where 5 radiological classes have been defined. On the basis of sampling and analyses results following radiological parameters have been assigned to all impacted components and civil structures included in DDB: dose rate in contact, dose rate in distance 1m, external surface contamination, internal surface contamination and volume/mass contamination. Each room in controlled area has been described by following radiological parameters: average dose rate, maximum dose rate, average surface contamination of floor and walls and possible identified higher local surface contamination.

In the scope of the project, more than 3400 direct dose rates measurements, 1450 direct surface contamination measurements, 1200 laboratory alpha/beta/gamma analysis of outer surfaces, 560 sample analysis of primary circuit technological equipment inner surface, 20 in-situ gamma spectrometric measurements and 15 sample analysis of concrete drilling cores, have been performed. Final list of RNV included 8 vectors for contamination. Radiological data of individual items in DDB have been used for determination of total radiological inventory of V1 NPP.