Abstract. The prime goal of the Wismut environmental remediation (ER) project follows from the legal requirement to abate health risks, mitigate existing environmental damages and prevent future hazards.

The extent of remedial measures is derived by investigation of the object-specific remediation feasibility rather than by application of uniform standards. The ER workflow, unlike common civil engineering projects that are a linear succession of tasks, is an iterative process. Within the ER workflow, Conceptual Site Models (CSM) guide the optimization of designs and investigations while both operational works and environmental base line are monitored. The acquired data are collected and analyzed on a corporate wide level to provide decision-making support for senior management.

In the present, advanced stage of the Wismut remediation the reutilization of the reclaimed areas and objects is receiving an increased attention. There are no legal restrictions on utilization of areas, which received a complete clean up. Utilization of areas, waste rock piles and tailings ponds reclaimed for restricted use allows only settlement of industry and trades or forestation, however, exemptions are possible if the responsibility for long term monitoring and maintenance are satisfactorily ensured. A mutually beneficial integration of reclamation plans with the communal/regional development has been successfully practiced in two former
mining towns, the first leading to rebirth of the health spa in Schlema and the second helping the preparation of the Federal Garden and Landscape Exhibition in 2007 (BUGA 2007) hosted by the towns of Ronneburg and Gera.

Background

Between 1945 and reunification of Germany (1989) more than 231 000 t of U₃O₈ have been produced in Saxony and Thuringia, East Germany. The mining and milling sites are in Fig. 1.

The mining and milling operations affected an area of approximately 100 km² and left behind probably the “worst” uranium-mining legacy in the world. The inventory and range of liabilities left behind at the time of production closure in December 1990 was as follows:

Operations areas (37 km²), five (5) large underground mines, an open pit mine (84 M m³), waste rock dumps (311 M m³) and tailings (160 M m³). The specific activity of the waste rock is 0.5 to 1 Bq/g and of the tailings up to 10 Bq/g.

To proceed with the Environmental Remediation (ER) of this legacy, a special “Wismut Act” has been passed in the Federal Parliament, December 1991. Based on this Act the Federal Government committed DM 13 billion (€ 6.6 billion) to the ER Program (the sum was later revised to € 6.2 billion) and for purposes of reclamation the national corporation Wismut GmbH was established.

Initially there was no sufficient and proven uranium mine closure experience available in Germany and, in order to commence work without delay, extensive use has been made of the experience available internationally. Cooperation was sought with the US Department of Energy’s UMTRA Project and the relevant institutions and companies in Canada. Yearly international topical workshops were

Fig. 1. Mining and milling sites of Wismut.

Plenary