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Waste Handling and Emplacement Options for Disposal of Radioactive Waste in Deep Boreholes 16277

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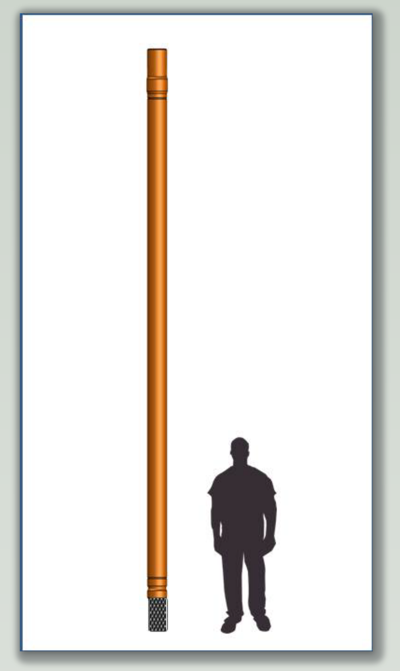
Two systems for remotely handling and emplacing waste packages in deep boreholes were developed. For disposal in boreholes up to 5 km deep, the conceptual waste packages are narrow and long with a 2.54 cm wall thickness to withstand hydrostatic pressures approaching 65 MPa.

In one system, 40 waste packages will be connected together in a shielded basement over the borehole and then lowered to the emplacement interval using drill pipe. In the other system, single waste packages will be lowered to the emplacement interval using a wireline.

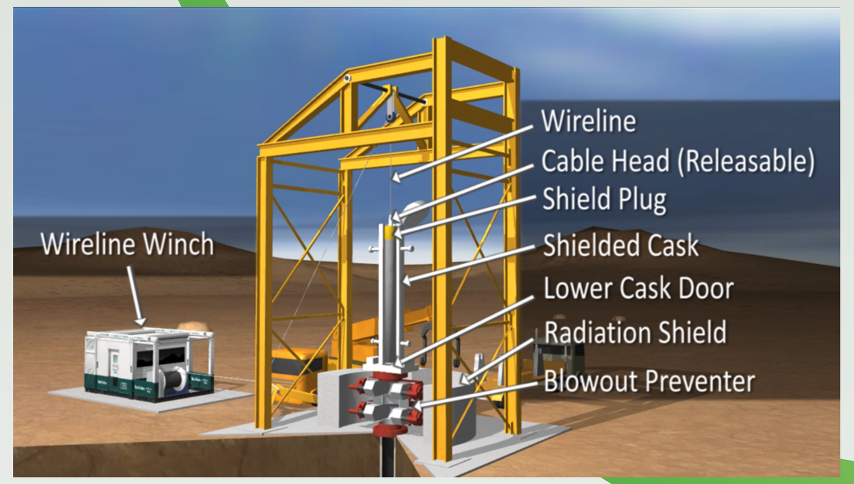
The purpose of this work is to develop the conceptual design of a system to handle and emplace waste packages in deep boreholes, so that the deep borehole field test can simulate the anticipated actual handling and emplacement of small volumes of U.S. Department of Energy-owned high-level radioactive wastes.

Emplacing Single Waste Packages using Wireline

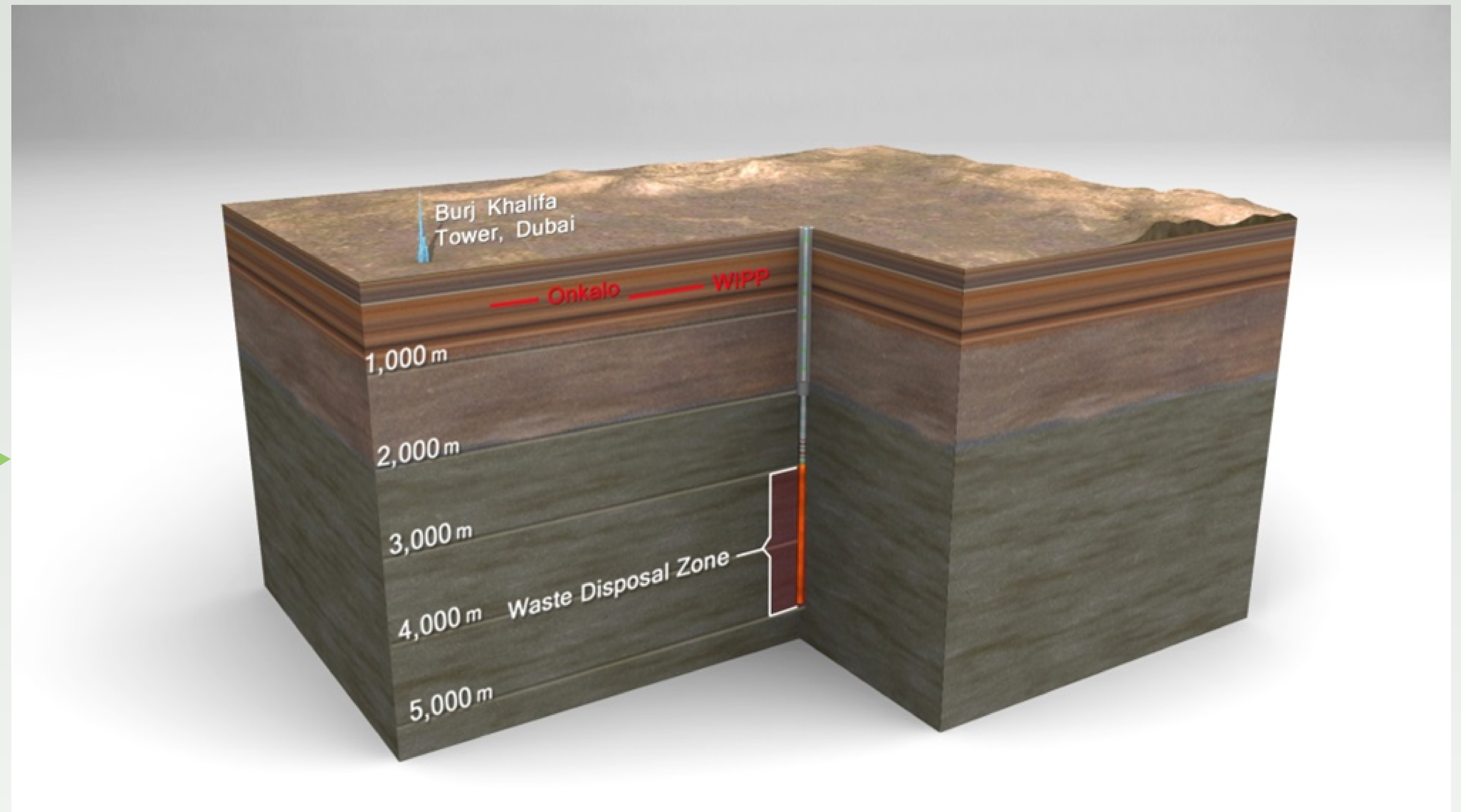


Waste Packages will be Narrow & Long (0.27m x 5.7m) for Borehole Disposal

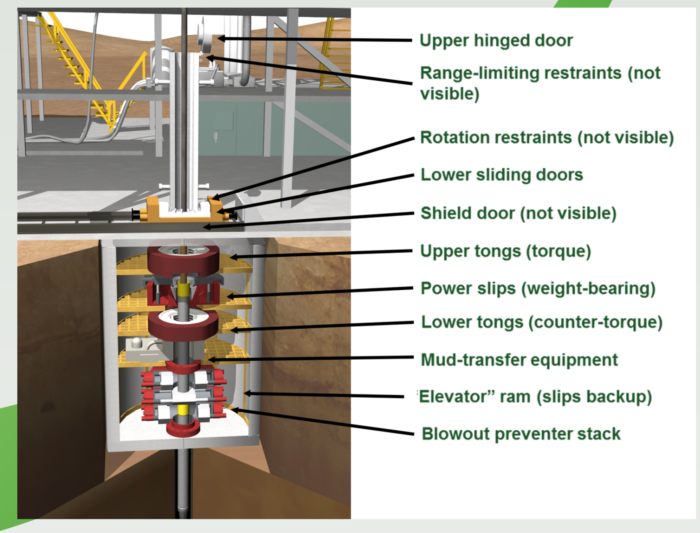
Emplacing Strings of 40 Waste Packages using Drill Pipe



Equipment for Lowering Single Waste Packages



Deep Borehole Disposal Concept



Shielded "Basement" for Assembling Strings of Waste Packages

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