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Disposal at the end stage of nuclear waste management

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A brief consideration is given of nuclear waste disposal options as the end stage of nuclear waste management (NWM) activities. Nuclear (the same as radioactive) waste is waste that contains, or is contaminated with, radionuclides, at activity concentrations greater than clearance levels set by the national regulatory organisations with international advice provided by the International Atomic Energy Agency (IAEA). Nuclear waste results as a byproduct of various nuclear energy applications ranging from medicine to power generation, as well as from processing of materials containing naturally occurring radionuclides (i.e. NORM) such as those within oil and gas production, ore beneficiation, and water purification. NWM envisions all administrative and operational activities involved in the handling, pretreatment, treatment, conditioning, transport, storage and disposal of radioactive waste. Advantages provided by the borehole disposal both for vertical and horizontal options are due to the placement of nuclear waste packages straightly into boreholes (tunnels, wells) via the near surface reception sections of GDFs. Instead, mined GDFs utilise accessing disposal wells after transportation of nuclear waste packages into the disposal section of repository located deeply underground. This requires significant infrastructure deep underground which results in high maintenance costs and actual or potential upgrading expenditures .

Technical Track

Fuel Cycle and Waste Management

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