

fractured/porous media, vapour pressure lowering effect, enhanced vapour diffusion from pore level phase changes, and an approximate treatment of Knudsen diffusion.

926459

Disposal of low-level radioactive wastes on the Oak Ridge Reservation. I. Preliminary screening analysis for identification of important radionuclides

Kocher, D C; Lee, D W

Radioact Waste Manage V16, N2, 1991, P83-99

Low-level wastes generated at the ORR contain a variety of nuclides. It is proposed to dispose of these wastes by shallow trench burial or in above-ground tumuli. Transport pathways are assumed to be via infiltration to aquifers and via surface runoff to surface waters respectively. A simplified analysis, ignoring the existence of engineered barriers, is presented which estimates the quantity of radioactive material released, its transport, and retardation. Annual doses to off-site individuals or intruders are calculated. This work is simplistic and conservative, but allows identification of the most important nuclides for further, realistic, site-specific performance analysis.

926460

Dynamic use of geoscience information to develop scientific understanding for a nuclear waste repository

Cook, N G W; Tsang, T F

Proc 1st Annual Topical Meeting on High Level Radioactive Waste Management, Las Vegas, 8-12 April 1990 V1, P565-571. Publ ANS/ASCE: La Grange Park, 1990

Satisfactory understanding of the behaviour of a geologic repository requires a multidisciplinary approach. Information is gained in stages, from regional survey data, testing at the surface, exploratory shaft development, and finally from construction and evaluation of the repository. The strategy for selection and exploration of a site is discussed. The interactive use of information gained at each stage is essential and the need to devise and continually update a quantitative spatial and process model of the repository is emphasised.

926461

Disposal in or beneath a thick sedimentary sequence

Heystee, R J; Rao, P K M; Raven, K G

Proc 6th International Congress International Association of Engineering Geology, Amsterdam, 6-10 August 1990 V4, P2737-2744. Publ Rotterdam: A A Balkema, 1990

Radioactive waste repositories must rely on geological barriers in addition to the engineered barrier to prevent transport of leached nuclides by groundwater. The hydrogeologic nature of sedimentary sequences may allow reliable prediction of groundwater flow and hence accurate assessment of transport potential. Three sedimentary sequences in Ontario have been identified as potential repository sites. The vaults may be within the sedimentary sequence or in underlying crystalline basement rock. Geological and hydrological characteristics of these sites are illustrated, and favourable characteristics discussed.

926462

Review: effects of (peri-) glacial processes on the stability of rock salt

Wildenborg, A F B; Bosch, J H A; de Mulder, E F J; Hillen, R; Schokking, F; van Gijssel, K

Proc 6th International Congress International Association of Engineering Geology, Amsterdam, 6-10 August 1990 V4, P2673-2770. Publ Rotterdam: A A Balkema, 1990

The Zechstein rock salt bodies are candidate sites for radioactive waste repositories in Holland. Numerical simulations are made of the effects on these deposits of the glaciation expected in the second half of the next 100000 years. Ground freezing, differential loading by the ice sheet, and glacial erosion are considered. It is concluded that repositories in the Zechstein salt at depth less than 540m from the surface could be adversely affected by the glaciation.

926463

Application of analytical methods for jointed rock as part of a drift design methodology for the Yucca Mountain Project

Costin, L S; Bauer, S J; Hardy, M P

Proc International Conference on Mechanics of Jointed and Faulted Rock, Vienna, 18-20 April 1990 P977-983. Publ Rotterdam: A A Balkema, 1990

As part of the design program for a nuclear waste repository in welded tuffs, a model for analysing the rock-mass behaviour in the vicinity of drifts is proposed. Modelling techniques considered include finite element, discrete element, and boundary element methods. Due to the heat released by the waste, stresses resulting from thermal expansion of the rock will play a major role. Several constitutive models are also being considered for modelling the effects of jointing.

Underground construction methods

926464

Intelligent tunnelling

Higo, M; Takami, M

In: Rock Mechanics in Japan, Volume VI P71-74. Publ Tokyo: Japanese Committee for ISRM, 1991

Many tunnel alignments are through complex geological conditions which makes it desirable to use techniques where measurements are made continually during construction and the information fed back to refine the design process. The example of the Tomai Expressway Improvement is presented. Nature and location of the instrumentation, and some details of response as the construction proceeded in primarily conglomerate and mudstone geology are illustrated. Support measures designed to counter the monitored ground movement are shown.

926465

Recent progress in shield and TBM

Shimazu, A

In: Rock Mechanics in Japan, Volume VI P75-80. Publ Tokyo: Japanese Committee for ISRM, 1991

Recent developments in soft ground tunnelling are outlined. Closed face (slurry or earth pressure balanced) shields are widely used. Cutting face structure and slurry material can be matched to face conditions. The multiface shield (MFS) with overlapped and longitudinally separated cutters and the double-o-tube (DOT) shield with overlapped and synchronised cutters cut cocoon-shaped tunnel sections. The planetary cutter shield permits a range of ovoid and horseshoe sections. Articulated shields permit controlled curves to be driven. Shields capable of functioning in mixed face conditions are also available.