KÄRNAVFALLSRÅDET
Swedish National Council for Nuclear Waste

Scientific symposium

New insights into the repository's engineered barriers

Stockholm, 20–21 November 2013

Venue: Näringslivets hus, Storgatan 19, 114 85 Stockholm

Wednesday 20th November

08.30 Registration

09.00 Welcome
Carl Reinhold Bråkenhielm, Chairman of the Swedish National Council for Nuclear Waste

09.20 On the long-term durability of the engineered barriers in the repository
Willis Forsling, Professor Emeritus of Inorganic Chemistry at the Luleå University of Technology, member of the Swedish National Council for Nuclear Waste

PART 1 THE LONG-TERM SAFETY OF THE COPPER CANISTER

Chair: *Ron Latanision*, Corporate Vice President and Director of Exponent's Mechanics and Materials Practice, USA

9.40 Some pressing challenges in assuring the integrity of high level nuclear waste isolation systems
Digby Macdonald, Professor of Materials Science and Engineering in Residence, University of California at Berkeley, Berkeley, CA, USA

10.20–10.40 Coffee

10.40 Copper corrosion and its implications for the KBS-3 concept
Peter Szakálos, researcher in Chemical Science and Engineering at the Royal Institute of Technology, Sweden

11.20 Corrosion of copper in molecular oxygen free water
Mats Boman, professor of Inorganic Chemistry at Uppsala University, Sweden

12.00 Discussion

12.30–13.30 Lunch

13.30 Radiation induced corrosion of copper for spent nuclear fuel
Christofer Leygraf, professor of Corrosion Science of the Royal Institute of Technology, Sweden

14.10 Hydrogen absorption on copper and implication for long-term safety
Hannu Hänninen, Professor of Mechanical Engineering at Helsinki University of Technology, Finland

14.50–15.20 Coffee

15.20 The creep ductility problem of copper
Kjell Pettersson, Material specialist, Matsafe Sweden

16.00 Long-term integrity of the KBS-3 canister
Allan Hedin, Safety Analyst, Svensk kärnbränslehantering AB (SKB), Sweden

16.40 Discussion

17.00 End of day

Thursday 21st November

PART 2 THE LONG-TERM PERFORMANCE OF THE BENTONITE BUFFER

Chair: *Barbara Pastina*, Senior Program Officer, Saanio & Riekkola Oy, Finland

08.30 Physical/chemical stability of the buffer clay in a KBS-3V repository
Roland Pusch, Professor emeritus in Engineering Geology, Sweden

09.10 Production of bentonite components and operational issues
David Luterkort, Specialist Engineered Barrier Systems, Svensk kärnbränslehantering AB (SKB), Sweden

09.50 Chemical erosion of bentonite components in the KBS-3V design
Tim Schatz, Senior researcher at B+Tech, Finland

10.30–10.50 Coffee

10.50 Chemical stability of bentonite and claystone under repository conditions in the French context: interactions between clay materials and cement, iron and glass
Michau Nicolas, Research Manager at Andra, France

11.30 Performance of the buffer and uncertainty management in the Finnish safety case TURVA-2012
Margit Snellman, Safety Case Project Manager, Saanio & Riekkola Oy, Finland

12.10 Discussion

12.30 Closing of the conference
Willis Forsling

12.50 Lunch