ACES Towards Improved Assessment of Safety Performance for LTO of Nuclear Civil Engineering Structures

ACES Final Project Workshop
22-24.4.2025
Linkebeek, Belgium

AGENDA

Tuesday, 22.4.2024

12:15 Bus from Waterloo (details coming soon) to Laborelec

- *Afternoon Session*
  - 13:00 – 13:45 Registration *(Hosts: ENGIE Laborelec & SCK CEN)*
  - 13:45 – 14:00 Welcome speech by ENGIE
  - 14:00 – 14:20 General welcoming, Introductions and Agenda *(Miguel Ferreira, VTT)*
  - 14:20 – 14:35 EC Project Officer *(Kateřina Ptáčková, European Commission)*
  - 14:35 – 15:00 Project overview *(Miguel Ferreira, VTT)*
  - 15:00 – 15:30 Session 1 – Review of WP1: State-of-the-art of quantitative assessment of ageing of concrete SSC in NPPs
    - Diederik Jacques (SCK CEN) – *The main contributions of ACES – Understanding, monitoring, modelling concrete evolution for LTO of NPP*
  - 15:30-16:00 Coffee/Break
  - 16:00 – 18:00 Session 2 – Review of WP2: Corrosion assessment of embedded liners in concrete
    - Elina Huttunen-Saarivirta, Valdir De Souza, Andraž Legat (VTT, SCK CEN, ZAG) – *Advancing the understanding of crevice corrosion mechanisms on steel liners in concrete*
    - Anssi Laukkanen (VTT) – *Phenomenological modelling of embedded steel liner corrosion in NPP*
    - David Bouhjiti, Véronique Dewynter-Marty (ASNR, CEA) – *Probabilistic and statistical analysis of chloride induced and crevice corrosion models and experimental data.*
    - Nina Gartner (ZAG, ENGIE LAB, CEA) – *Developing a Robotic NDT System for Corrosion Assessment in Steel Cylinder Concrete Pipes*
    - Alexandre De Briey (ENGIE) – *Recommendations on methodology for ageing management of NPP*

18:30 Bus from Laborelec to Waterloo (details coming soon)

This project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 900012

Wednesday, 23.4.2025

08:15 Bus from Waterloo (details coming soon) to Laborelec

- *Morning session*
  - 8:55 – 9:00 General welcoming and Agenda *(Miguel Ferreira, VTT)*
  - 9:00 – 11:00 Tour of ENGIE Laborelec Labs
  - 11:00 – 11:30 Coffee/Break
  - 11:30 – 12:30 Invited Speaker(s) – EUG session
    - Ippei Maruyama (University Tokyo) – *Scientific questions to be solved in the future for concrete under irradiation*
    - Cédric Androuët (CNSC) – *CNSC perspective on gaps in knowledge for concrete containment structures.*
    - Jiří Prokeš (Temelín NPP) – *title to be added*
    - *N.N.* (ENGIE) – *title to be added*
  - 12:30 –13:30 Lunch
- *Afternoon Session*
  - 13:30 – 15:30 Session 3 – Review of WP3: Characterization, prediction and monitoring of internal swelling reactions (ISR) in concrete
    - David Bouhjiti (ASNR) – *General overview of WP3*
    - Yushan Gu (VTT) – *Overview and tangible results from Characterisation of ISR in concrete*
    - Georges Nahas (ASNR) – *Effect of pre-stressing on the development of ISR*
    - Danfour Abubaker, Jacques Diederik (SCK) – *Overview and tangible results from modelling of ISR in concrete (T2)*
    - Stanislav Sholimitsky (ENERGORISK) – *Recommendation for end-users*
  - 15:30 – 16:00 Coffee/Break
  - 16:00 – 18:00 Session 4 – Review of WP4: *Delayed strains of containment buildings in operational and accidental conditions*
    - Jean-Luc Adia (EDF) – *WP4 overview*
    - Jean-Luc Adia (EDF) – *Benchmark VERCORS*
    - Georges Nahas (ASNR) – *Guidance report for CCB behaviour calculations*
    - Veronique Dewynter-Marty (CEA) and Lander Frederickx (SCK-CEN) – *Characterization of VERCORS concrete properties during and after LOCA conditions*
    - Jean-Luc Adia (EDF) – *Characterization and Modelling of VeRCoRs concrete delayed behaviour under accident conditions*

This project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 900012

- Alexandre Nehme (ASNR) – *Assessment and improvement of Fib Model Code 2020 formulas for moderate temperatures and biaxial loading conditions*
- Vít Smilauer (CTU), Julien Sanahuja (EDF) and Suresh Seetharam (SCK-CEN) – *Benchmarking Standard and Micromechanical Models for Creep and Shrinkage of Concrete*

18:30 Bus from Laborelec to Waterloo (details coming soon)

- *Evening*
  - 19:30 – 22:00 Project dinner

Thursday, 24.4.2025

08:15 Bus from Waterloo (details coming soon) to Laborelec

- *Morning session*
  - 8:55 – 9:00 General welcoming and Agenda *(Miguel Ferreira, VTT)*
  - 9:00 – 10:30 Session 5 – Review of WP5: *Assessing the performance of irradiated concrete (Part 1)*
    - Petr Štemberk (CTU) – *Numerical assessment of CBS (VVER-440 and VVER-100)*
    - Zbyněk Hlaváč (CVR) – *Radiation induced degradation of rock samples*
    - Alica Fedoriková (CVR) – *Irradiation experiment and PIE of aggregates*
    - *student tbc* (CTU) –*Preparation of future generation of experts*
  - 10:30 – 11:00 Coffee/Break
  - 11:00 – 11:30 Session 5 – Review of WP5: *Assessing the performance of irradiated concrete (Part 2)*
    - Benoît Bary (CEA) – *3D mesoscale Thermo-Hydro-Mechanical simulation of irradiated concrete*
  - 11:30 – 12:00 Discussion session on way forward and Workshop closing *(All WPLs)*

12:30 Bus from Laborelec to Waterloo (details coming soon)

This project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 900012