STUDSVIK INTERNATIONAL PROGRAMS

Studsvik - the International Laboratory. For more than 75 years we have served the nuclear community with applied research to of continuously improve safety and operational performance. Our world leading research is conducted for individual customers or delivered as part of multilateral programs, where several stakeholders come together to analyze a common topic.

Since the 1970's Studsvik has hosted both national and international joint research programs for nuclear stakeholders, generating important data for the understanding of various phenomenon including crack growth of structural materials, in depth fuel analysis and fundamental studies of fuel rods to support modelling among other high priority topics.

"Multilateral programs allow development of international best practices, knowledge transfer and peer reviews by specialists from the entire nuclear community"

In many research areas there are global common needs for data to support safety analyses, technology development and lifetime extension of nuclear power plants. Such research typically requires extensive testing with large number of experiments to verify new models and theories. These programs can include studies of materials' behavior under simulated reactor conditions, stress tests of materials to support safety analysis modelling and supplying important experimental data to validate fuel performance codes.

"Experiments on irradiated fuel at Studsvik enabled us to touch the physics hidden behind our computer screens, a lifetime experience on the fuel behaviour Holy Grail path!"

Nicolas Waeckel
Nuclear Fuel Safety and R&D International Expert
EDF

Besides the opportunity to share the investment of the hot cell examinations, forming a joint multilateral program also allows development of international best practices, knowledge transfer and peer reviews by specialists from the entire nuclear community including fuel vendors, utilities, technical support organizations and regulators.

Being an independent organization with a well-established global network, Studsvik can develop programs meeting prioritized needs for the data users with minimal lead times. Together with one or multiple partners a research idea is identified, the objective is defined, and the experimental techniques available in Studsvik hot cells are tailored to maximize the outcome of the research.

"Over 30 organizations from more than 15 countries are currently active participants in any of Studsvik's joint programs"

For any techniques not available in Studsvik facilities, collaboration with national laboratories in other countries is also an option. We can manage the contracting process including identification of potential members. This approach together with Studsvik's large library of spent fuel rods and aged reactor components from commercial and experimental reactors available, the lead time from idea to research is often shortened by several years compared to if a dedicated transport should be required.

Studsvik operates two OECD/NEA programs, SCIP and SMILE, both with five years project plans and covering members within over 30 organizations from more than 15 countries. SCIP, started in 2004, with a focus on fuel safety while SMILE with focuses on lifetime extension was started in January 2021.

Studsvik recently took the initiative to create the multilateral program SPARE with the purpose of supporting continued use of the fuel from the Halden Reactor project. Within this framework the most interesting fuel samples will be transported to Studsvik from Norway and new research programs are currently being defined by the members of SPARE.

The international programs are of high priority for Studsvik, and we constantly aim to offer services to support the nuclear community's need for experimental data. Studsvik has proven success as a major international laboratory and our programs form an import part of this.

Summary

- Studsvik has successfully hosted international programs since the early 1970's.
- Joint programs typically aim to support safety analysis modelling and supplying important experimental data to validate fuel performance codes.
- Development of international best practices, knowledge transfer and peer reviews by specialists from the entire nuclear community are additional benefits of collaborative projects.
- Studsvik has a unique library of spent fuel rods and core components irradiated in commercial and materials test reactors.
- Studsvik OECD/NEA projects SCIP and SMILE gather more than thirty organizations from over fifteen countries

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