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### Review on the PhD thesis of Olga Borisevich

I undersigning, Dr. Uwe Besserer, head of TLK operation (chief operating officer), master of science (chemical engineering), Dr. rer. nat. (nuclear chemistry), certifies that Olga Borisevich was employed since July 2010 directly under my supervision and has prepared a dissertation “Development of a separation process of mixtures hydrogen-helium in the presence of water vapor by zeolite membranes”. During her five years of involvement at TLK, Olga had the full responsibility to make progresses in an innovative research field dealing with advanced zeolite membranes and their potential use for recovering tritium from different gaseous effluents.

The main part of her work has been focused on experimental activities to measure permeation and separation performances of different membrane prototypes. For these activities, Olga Borisevich showed great skills and huge commitment allowing her designing, constructing and operating successfully an experimental setup that she progressively and continuously upgraded to execute experiments finally up to fully relevant configuration processing a ternary mixture of gases and vapour with the membranes. Significant amount of promising experimental results have been produced that allow TLK being confident in pursuing this R&D field. Nine scientific papers (“Fusion Science and Technology”, “Fusion Engineering and Design”, Separation and Purification Technology”) and contributions to conferences can substantiate this statement. Another important area of her work has been devoted to the mathematical modelling of a series of permeation modules that has been afterwards implemented in a numerical tool enabling simulation and optimization studies of the membrane cascade process that we are proposing as advanced tritium extraction system in fusion nuclear reactors. During her 5 years of

working period at TLK, Olga Borisevich had also the directly responsibility to closely accompany the involvement of several bachelor and master students, and trainees along this project, and proved to be very successful in her management duties.

All along her engagement at the Tritium Laboratory Karlsruhe, Olga Borisevich showed very good engineering, experimental, and soft skills. She greatly contributed to a new R&D area.

According to the scientific level, innovation and practical importance, the dissertation of Olga Borisevich fulfil the requirements to PhD thesis and deserves an approval and conferment of PhD degree.

Yours sincerely,

