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SERVICE PLATFORM IN NUCLEAR FUEL CYCLE: PRACTICAL SOLUTION FOR THE USED NUCLEAR FUEL FROM POWER REACTOR ISSUES AND SECURING OF THE FUEL SUPPLY

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The obligation of used nuclear fuel (UNF) management lies with the NPP operator, and further –with the country which origins it. International Agreements like IAEA Joint Convention and the EU Directive 2011/70/Euratom all state that final wastes should be disposed of in the country where it is generated. Therefore, the ultimate responsibility for the management of radioactive waste (RW) lies with each member country. In many cases for the sole country and especially the sole NPP operator it is not easy to keep that responsibility: for example, for countries with small nuclear programms it will be difficult to have enough resources available for managing spent fuel and radioactive wastes. In certain circumstances, safe and efficient management of UNF and RW might be fostered through agreement among countries to use facilities in one of them for the benefit of the others.

Another potential approach to be considered is to put responsibility for UNF disposal on the fuel supplier in the model of fuel leasing. The ability to transfer responsibility for all the fuel issues including supply of the fresh one and treatment of the irradiated one is a long-standing desire of the most NPP operators , since the main task for the operator is safe and economically effective electricity production. And other tasks seem to be forced or indirect. But this desire can be hardly realized for some reasons. One of them is RW return issue: desired leasing scheme does not include the return of any RW after UNF reprocessing to the country where this UNF is generated, which, as a rule, is unacceptable for political reasons.

History knows cases when, despite to the above restrictions, the nuclear fuel leasing was implemented (for example take-back service between the USSR and Eastern Europe countries, when the used fuel of power reactors came back to USSR from GDR, Hungary, Bulgaria etc). However, these cases are the exception rather than the rule.

At the same time, the leasing concept has a number of undeniable advantages, the most important of which is the focus on the service nature in the cooperation between the supplier and the customer. The report describes how the service principle may be implemented to the fuel supply and UNF management, taking into account the current capabilities and limitations.

It is important to note that the paper does not propose any new technical solutions and inventions, but concentrates on the model that could integrate currently existing and developing solutions to be attractive to the UNF owner.

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Country or International Organization

Russian Federation

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