**Integration Group for the Safety Case (IGSC) Symposium 2024***MOVING TOWARDS THE CONSTRUCTION OF A SAFE DGR – GETTING REAL*

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| **Abstract Title:**  Questions raised by the management of “in-between waste”: challenging issues in application of the graded approach in France | |
| **Abstract (300-500 words):**  Andra is operating near-surface facilities at the industrial scale in France to dispose of very low level and low level and short-lived wastes. Otherwise, Andra’s deep geological Cigéo project is under preparation to dispose of long-lived ILW and HLW, a large part of them resulting from spent fuel reprocessing. In between those wastes that can be accommodated by near-surface existing facilities with respect to safety and those wastes which require the high degree of isolation and containment provided by deep geological disposal, a wide range of wastes will have to be managed in appropriate disposal facilities to be developed. Some are legacy while others will be generated in the future.  Andra is so still facing the disposal of specific waste types, e.g., the so-called “in-between” Low-level long-lived waste (LLW-LL) wastes including: graphite waste ; radium bearing waste from the nuclear industry and wastes generated from non-nuclear activities (T-NORM) ; RW from nuclear industrial processes ; Uranium bearing waste, especially the waste generated by the conversion of uranium prior to its enrichment ; depleted uranium that is not considered as a resource ; disused radioactive sources.  Due to its origins, this category of “in between” waste is intrinsically heterogeneous and its activity changes over long-time raises questions about the confinement and the duration of isolation that a disposal facility must provide. The experience feedback from studies and research conducted to identify the management solutions for LLW-LL waste has highlighted the difficulties in characterising the hazardousness of LLW-LL. This leads to the matter of what these waste types have in common, especially for establishing a single set of disposal management principles.  Considering the diversity of waste for a proper management, the management solution strategy developed by Andra aims to collectively build and share a global vision of management strategies, both those that already exist and those to be developed. This global vision should make it possible to find a technical and economic optimization of the distribution of the different categories of waste in the different types of repositories, taking into account the waste production schedule and the best available technologies.  Taking into consideration the graded approach, Andra is studying shallow disposal for LL-LL waste as it provides a suitable protection and allows a significantly simpler and less costly implementation than deep geological disposal. Nevertheless, nearer to the surface, geodynamic uncertainties increase in the next 10,000 years. Situations without containment are likely to intervene in the long term and protection against Inadvertent Human Intrusion is also limited.  The paper and oral presentation will present the nature of “in between waste”, the management solution strategy developed by Andra and the “strategy roadmap” and challenging issues in application of the graded approach. | |