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Planning LILW disposal facility in Slovenia in a sustainable way

Planned Slovenian disposal facility for low and intermediate level waste (LILW) will be situated in Vrbina in municipality Krško. Slovenia will with final disposal of radioactive waste ensure a safe environment for present and future generations. The disposal concept is a near-surface silo which is first of its kind in the world. It is a combination of well-known surface and underground disposal concept. Containment and isolation of the waste is provided by various engineered and natural barriers. Multiple barrier approach is considered, therefore the failure in an engineered barrier will not have an impact on people and the environment because of the presence of other barriers. First engineered barrier is a metal drum containing the wastes, second is a N2d concrete container, third barrier is a silo and the last is a low permeable geological surrounding. Concrete used for the container and the silo will be high performance concrete whit long durability. Free spaces between containers and containers and the silo wall will be filled with backfilling grout and after the closure all the free spaces, the shaft and the drainage system of the silo will be sealed with the backfilling concrete. At the top the concrete will be covered with thick layer of clay. Thus, after the closure, the silo will become a monolithic structure.

The architecture of the hall above the silo considers the acceptability of construction for local community and environment. Considering reusable construction, the planned hall above the silo is envisioned to be used for another location if a new silo will be built. The same vision is planned for the crane located above the silo, used for waste disposal. After the construction, the surrounding environment will be greened with local plants and trees. This will establish a new habitat for plants and animals and ensure a sustainable future of the facility in connection to the environment. After the closure and a period of 300 years of an institutional control, the place will be put to unlimited use to the local community.

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