

Session 4 - posters

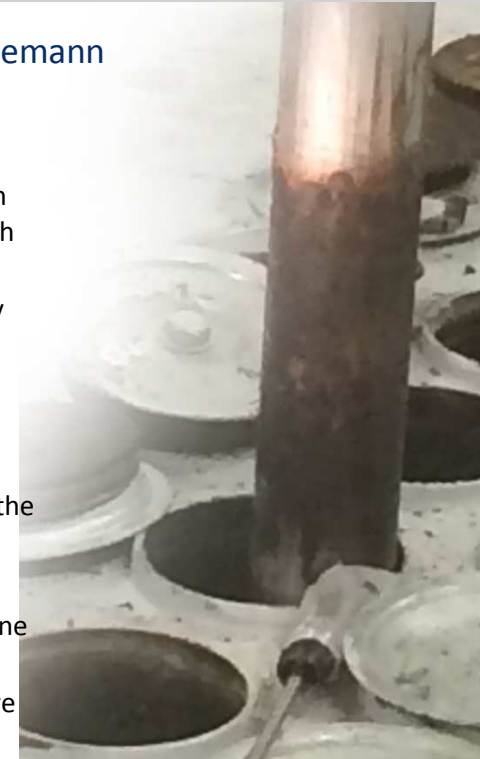
ID- 119: Al-clad metallic uranium legacy fuel after more than 50 years in underground dry storage

Stainless steel canister for a fuel element.
Signs of paint and corrosion products on Do.

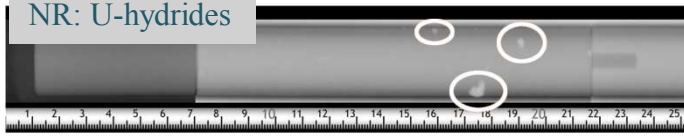
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Di of painted, steel clad, dry storage pit for a canister

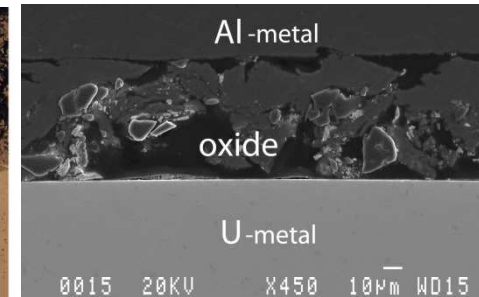
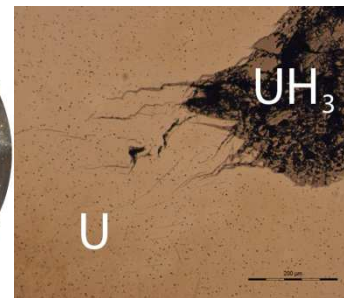
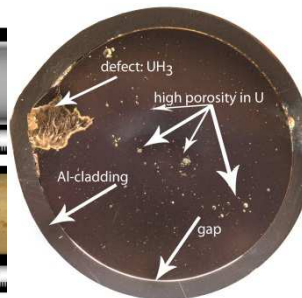
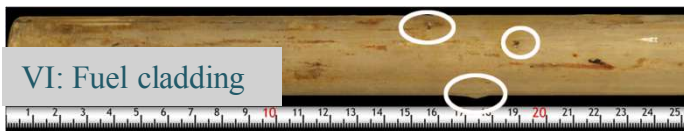
- IFE manages an underground dry storage of spent, legacy fuel elements originating from the first Norwegian research reactor, JEEP I (1951 to the mid 60s). Prior to discharge and storage all elements were logged with regard to BU and eventual defects in the Al-cladding.
- Discharged JEEP I fuel elements were placed in a cooling pond and later transferred to the underground dry storage site where most were kept from the mid 60s until today.
- During 20 years most fuel elements were stored in open Al canisters in the storage pits.
- In the 80s, pits were subjected to water ingress, subsequent drying and Di painting of the steel clad. Short drying time of paint.
- In the 80s, fuel elements were repacked and are stored now >30 years in closed stainless steel canisters in the pits. One canister in each pit. The pits were sealed by IAEA and opened before 2010.
- Restoration of the concrete top of the underground dry storage site was completed in 2010.
- PIE in terms of visual inspection (VI), neutron radiography (NR), metallography and SEM/EDS was done on one fuel element. As expected, defects in the Al-cladding and metallic U fuel were revealed.
- This paper and poster presents results from PIE and challenges that evolved from the PIE findings which have lead to increased risk assessments & tasks in the spent fuel ageing management programme.



NR: U-hydrides



VI: Fuel cladding





ID 5: AGEING MANAGEMENT OF SPENT NUCLEAR FUEL FACILITIES

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Considering that of spent fuel facilities, in most cases, will continue to operate after the plant is shut down.

It is critical to develop a plan for management ageing of the facilities.

In this poster the methodology for ageing management Atucha I spent fuel facilities and the results are displayed.