



# ***Handling of spent nuclear fuel of nuclear submarines at FSUE MAYAK PA***

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## ***MAYAK PA experience in the field of spent fuel assembly handling dismantled from nuclear submarines***

***About 250 hauls have been carried out to transport submarine spent fuel assemblies from North and Pacific marine bases***

***Over 160 tons of spent fuel from nuclear submarines have been reprocessed***





## ***Standard requirements determining the acceptability and reprocess ability of spent fuel assemblies at Mayak PA***

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- ✓ Structural integrity of spent fuel assembly ;
- ✓ Tightness in terms of fuel;
- ✓ Free retrievable fuel assembly from transport canister ;
- ✓ Fuel composition fitness for spent nuclear fuel reprocessing according to the respective Process Manual;
- ✓ Availability of passport data for nuclear materials in assemblies.



## ***Non-standard spent fuel assemblies***

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### **First group**

*relative conditioned  
spent fuel assemblies*

### **Second group**

*not damaged untight  
spent fuel assemblies*

### **Third group**

*destroyed spent fuel  
assemblies*

### **Fourth group**

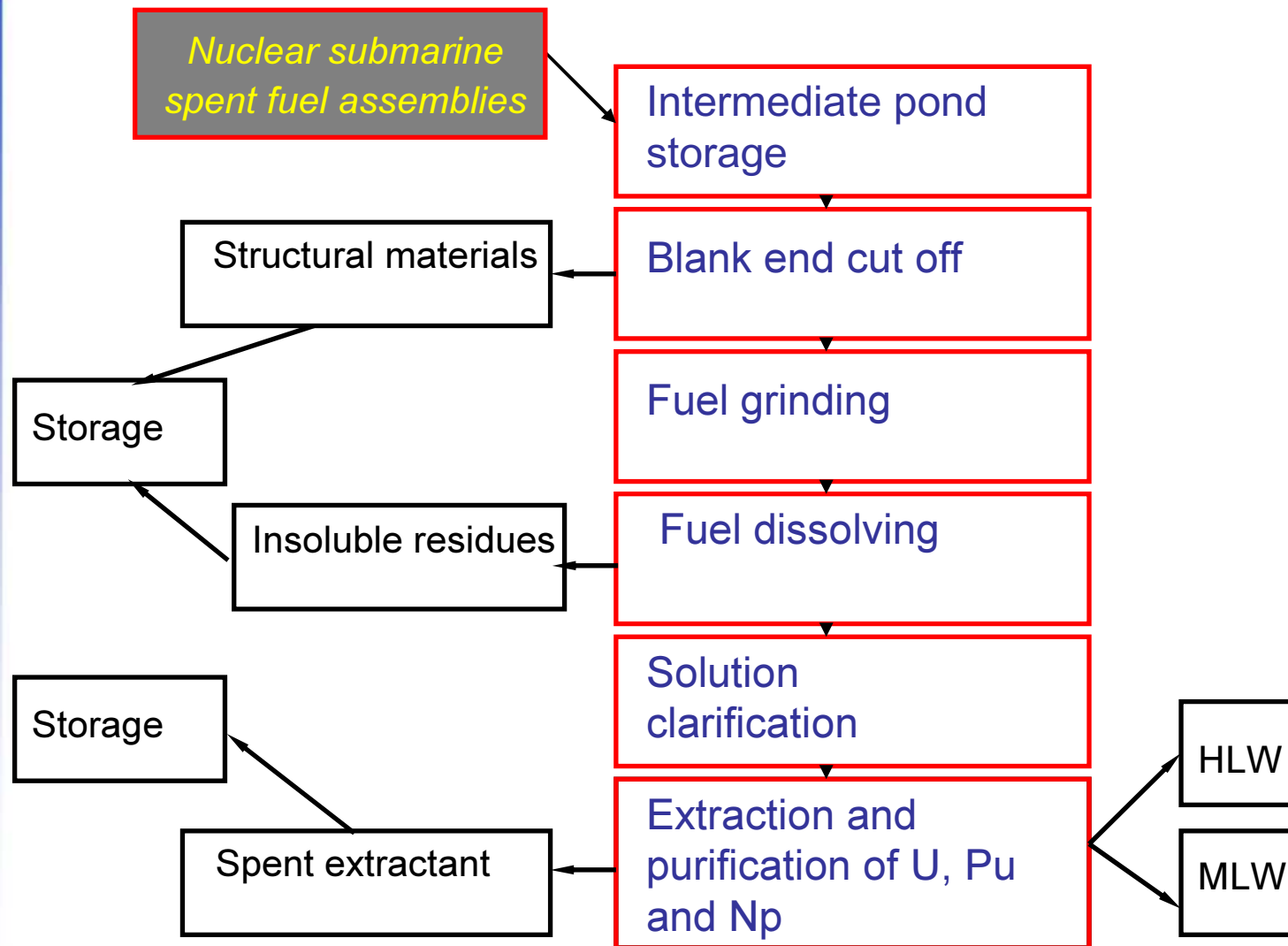
*non-retrievable spent  
fuel assemblies*

***If it is impossible to assess the technical state of spent fuel assemblies, they should be delivered and prepared for reprocessing according to the fourth group handling procedure***



## Process operations for spent nuclear fuel reprocessing

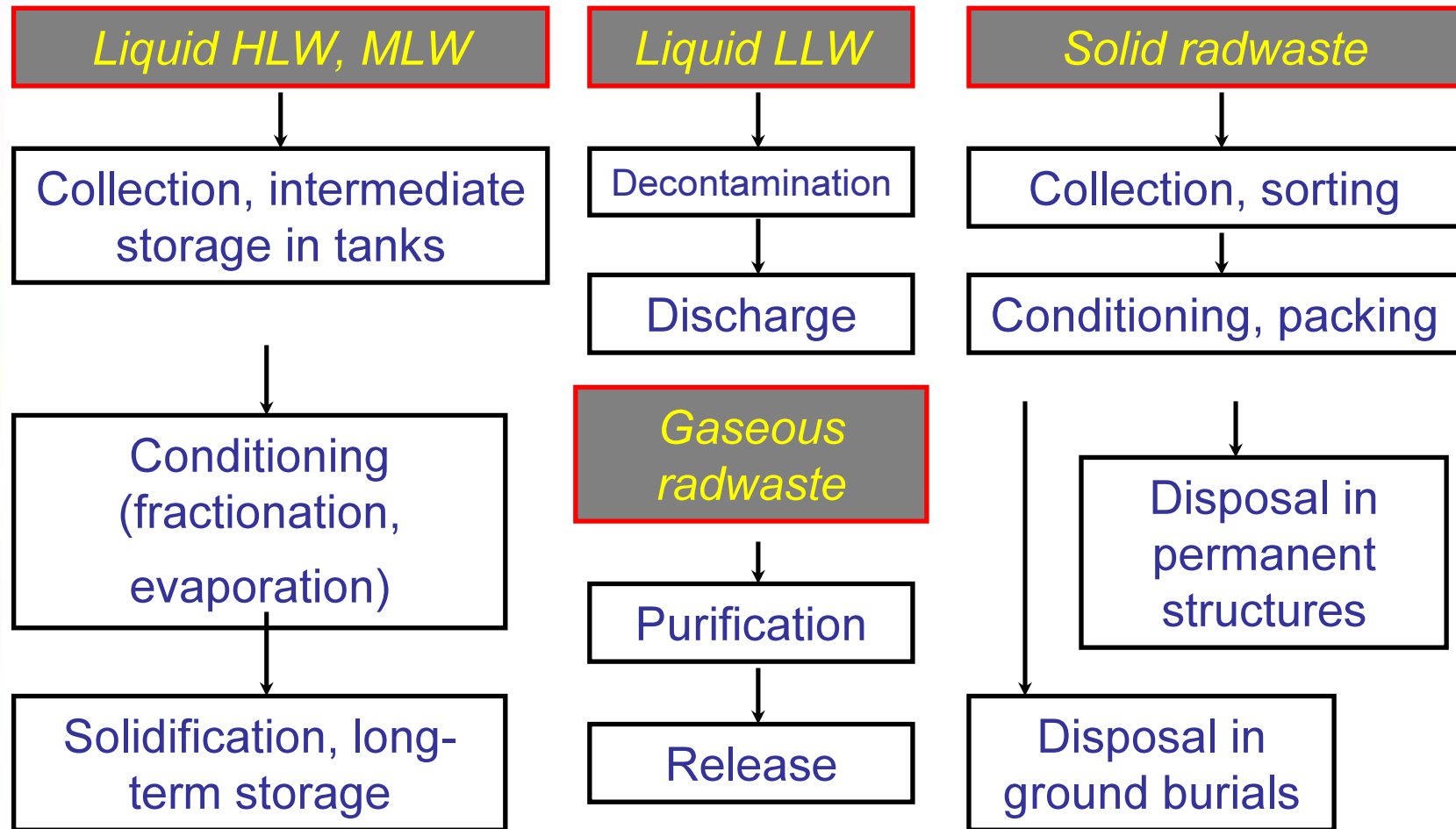
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# Schematic diagram of radioactive waste handling

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## ***Principal safety requirements to spent nuclear fuel handling***

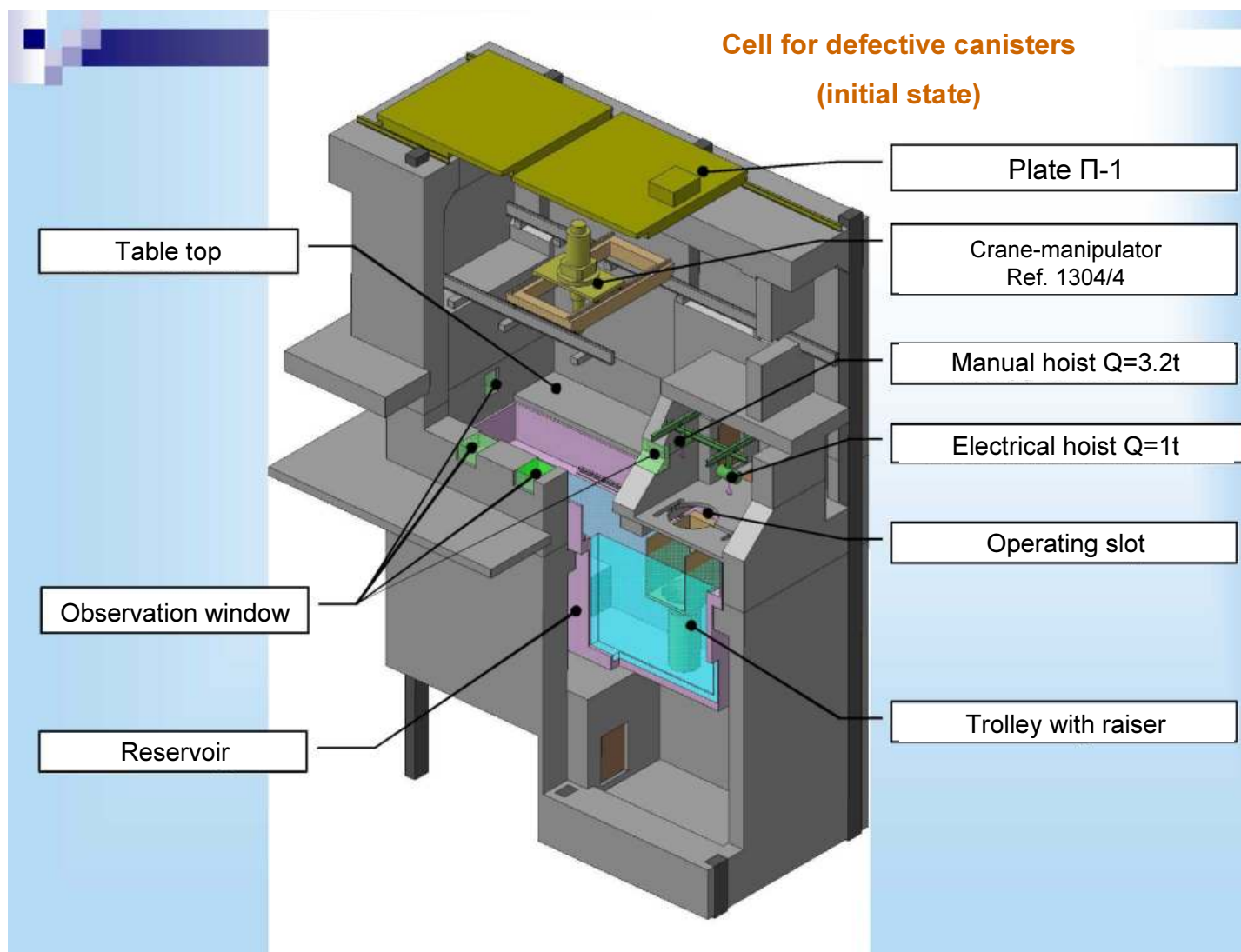
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- ✓ Not to exceed the admissible exposure limits to workers (personnel) and population due to normal operation, failures of normal operation including design accidents, as well as restriction of exposure due to beyond design accidents;
- ✓ Not to exceed admissible limits of radioactive material discharges and releases, environmental content of radioactive materials;
- ✓ To prevent nuclear accidents;
- ✓ Maximum possible recovery of nuclear accidents.



# Cell for defective canisters

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**THANK YOU  
FOR CONSIDERATION**