



Sellafield Ltd

# Application of Design Basis Accident Analysis (DBAA) at Sellafield, United Kingdom

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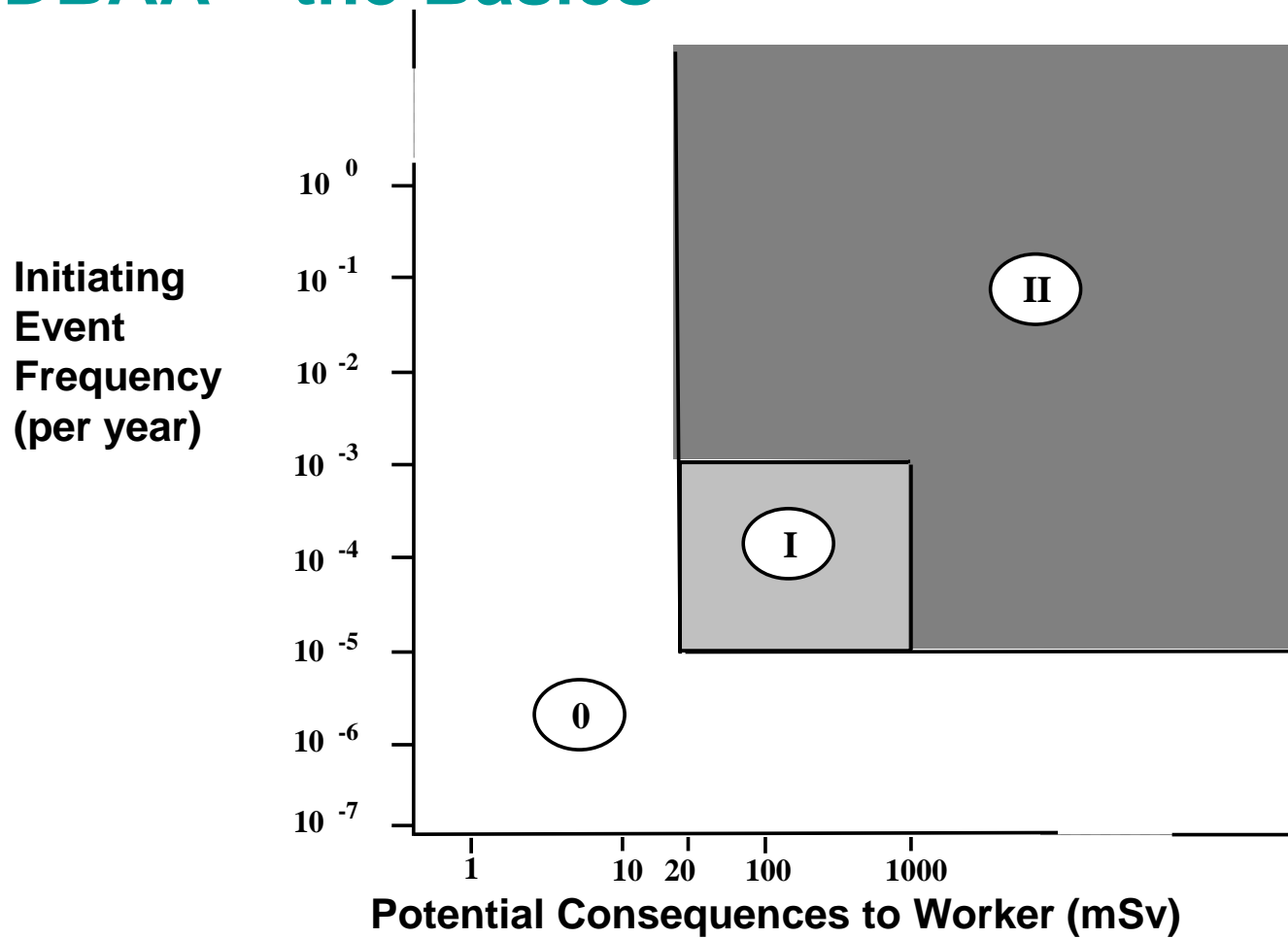
# DBAA – the Basics

- Initiating Event

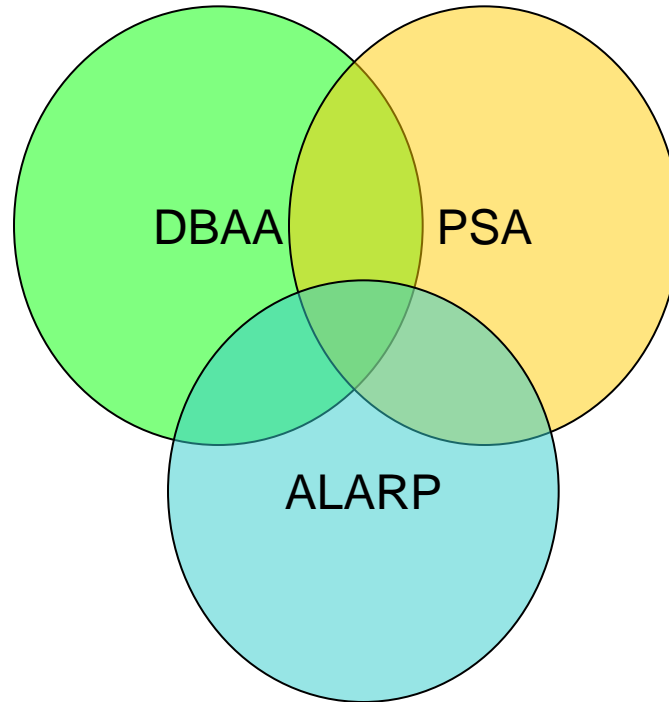
*“A fault condition arising from a failure of item or person which, if combined with any necessary detrimental circumstances, and in the absence of correct functioning of safety measures, would give rise to consequences.”*

- Basket Safety Measures

# DBAA – the Basics



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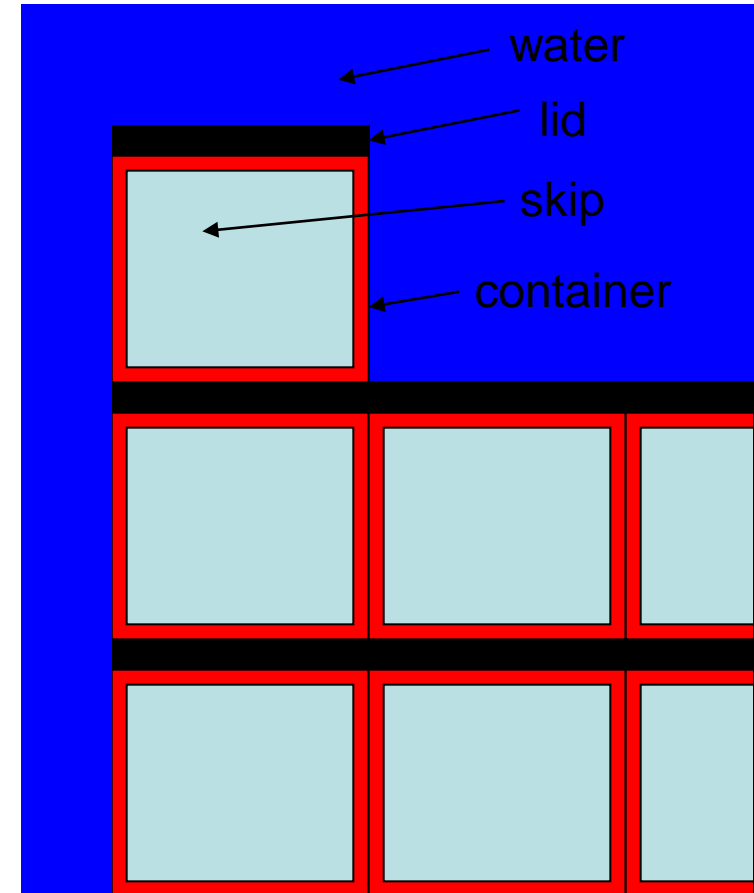
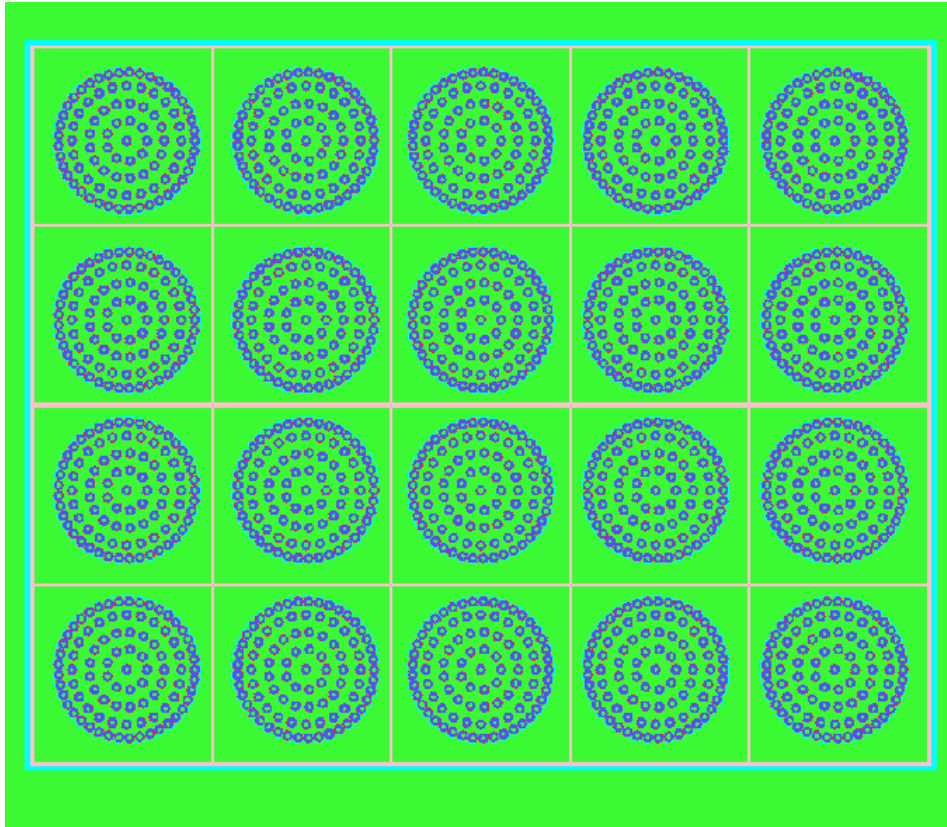


## Example Fault: Initiating Event is Difficult to Define Mechanical Handling Accident in the Fuel Handling Plant (FHP)

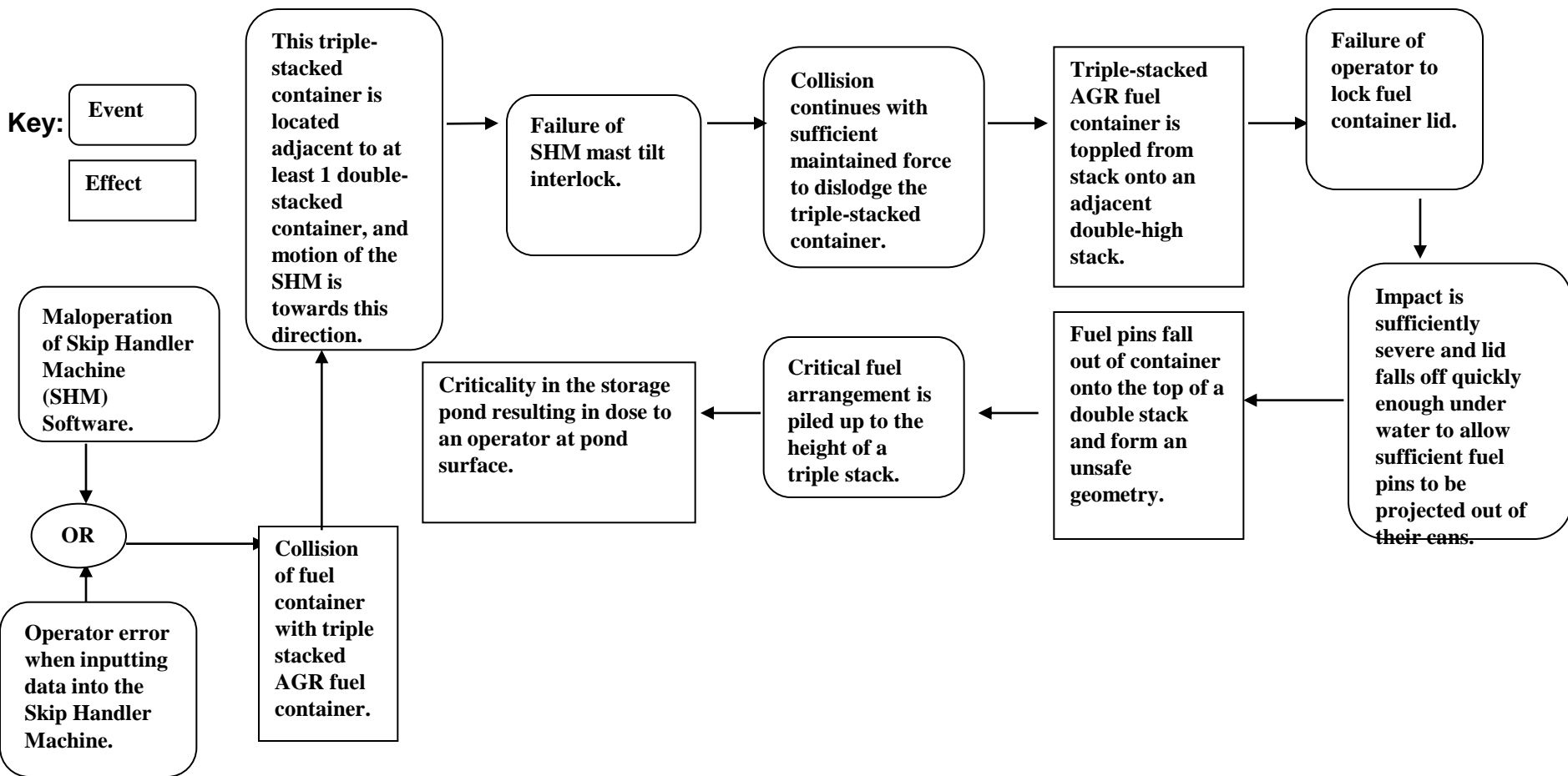
### Simplified Process Overview

- Irradiated AGR fuel elements arrive at FHP in a skip within a flask.
- The skip is transferred into a container, whose lid is locked.
- The container is dispatched to the pond where fuel is stored until ready for dismantling.
- Containers are removed from the pond and elements are removed from containers for dismantling.
- Fuel pins from three elements are put in each can.
- Cans are put in skip compartments before containers are locked and returned to pond.
- Currently, containers are only double stacked but need to assess triple stacking.

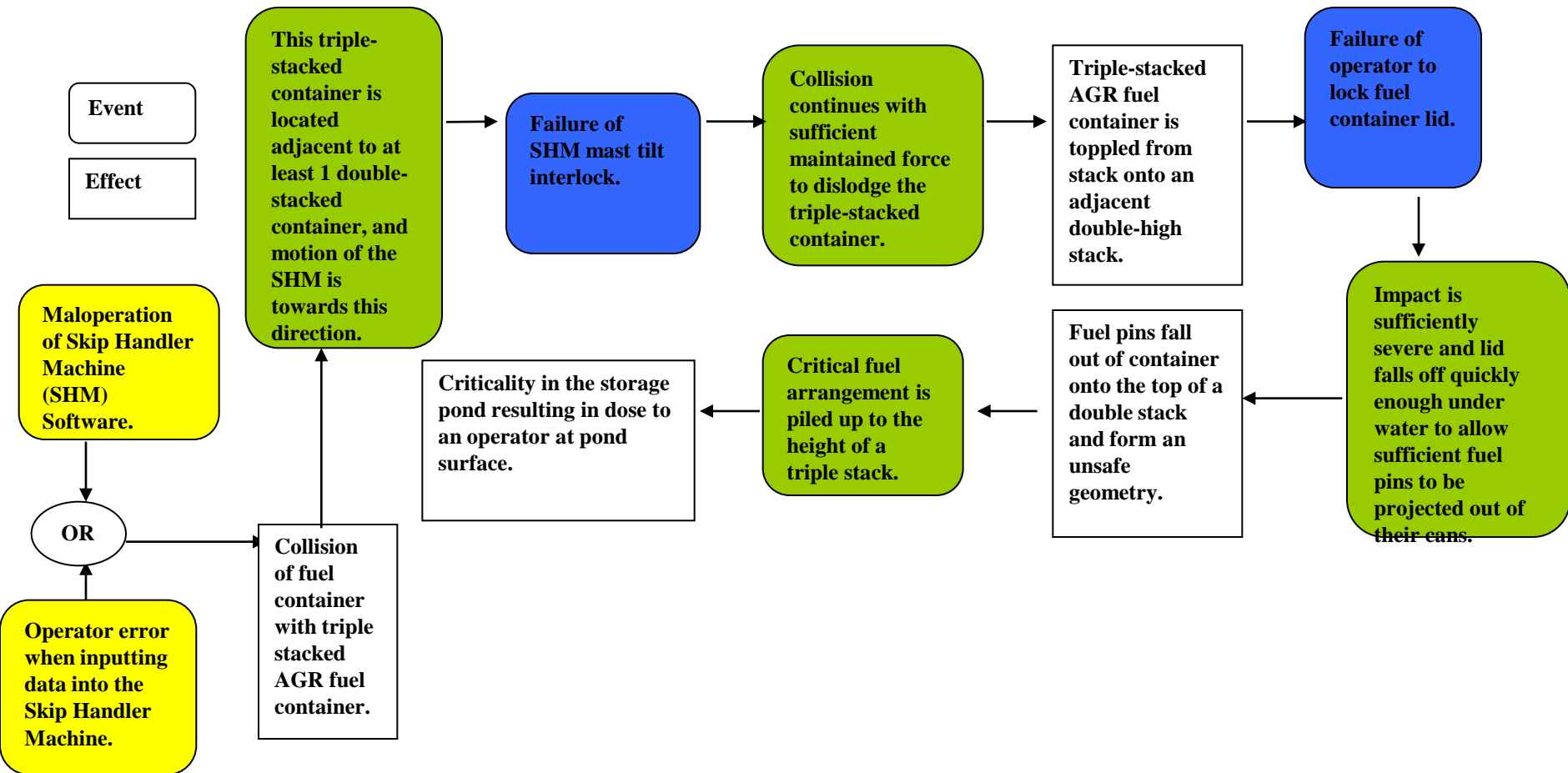
## Example fault: Initiating Event is Difficult to Define Mechanical Handling Accident in FHP



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## Summary

- Where DB2 faults are designated, more safety designations tend to be required to meet the requirements of DBAA than to meet those of the Double Contingency Principle.
- Take care when defining initiating events: don't take credit for protective measures.
- DBAA should not be considered in isolation, but it is a useful technique to demonstrate defence-in-depth and that operations are ALARP.