Technical Planning Bases: Planning for the Unexpected

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Objectives

- Discuss updated NA-41 requirements, guidance & expectations re. emergency management program Technical Planning Bases.
- Explain the recommended (EMG) process for developing & documenting realistic and defensible Technical Planning Bases.

Revised OE definition (O 151.1C)

Major unplanned or abnormal events that…

- *involve or affect DOE/NNSA facilities*
- *cause or have potential to cause serious health, safety or environmental impacts*

Revised OE definition: (continued)

- *require resources from outside the immediate/affected area or local event scene to supplement initial response*

AND

- *require time-urgent notifications to initiate response activities at locations beyond the event scene*

Hazardous material release OE

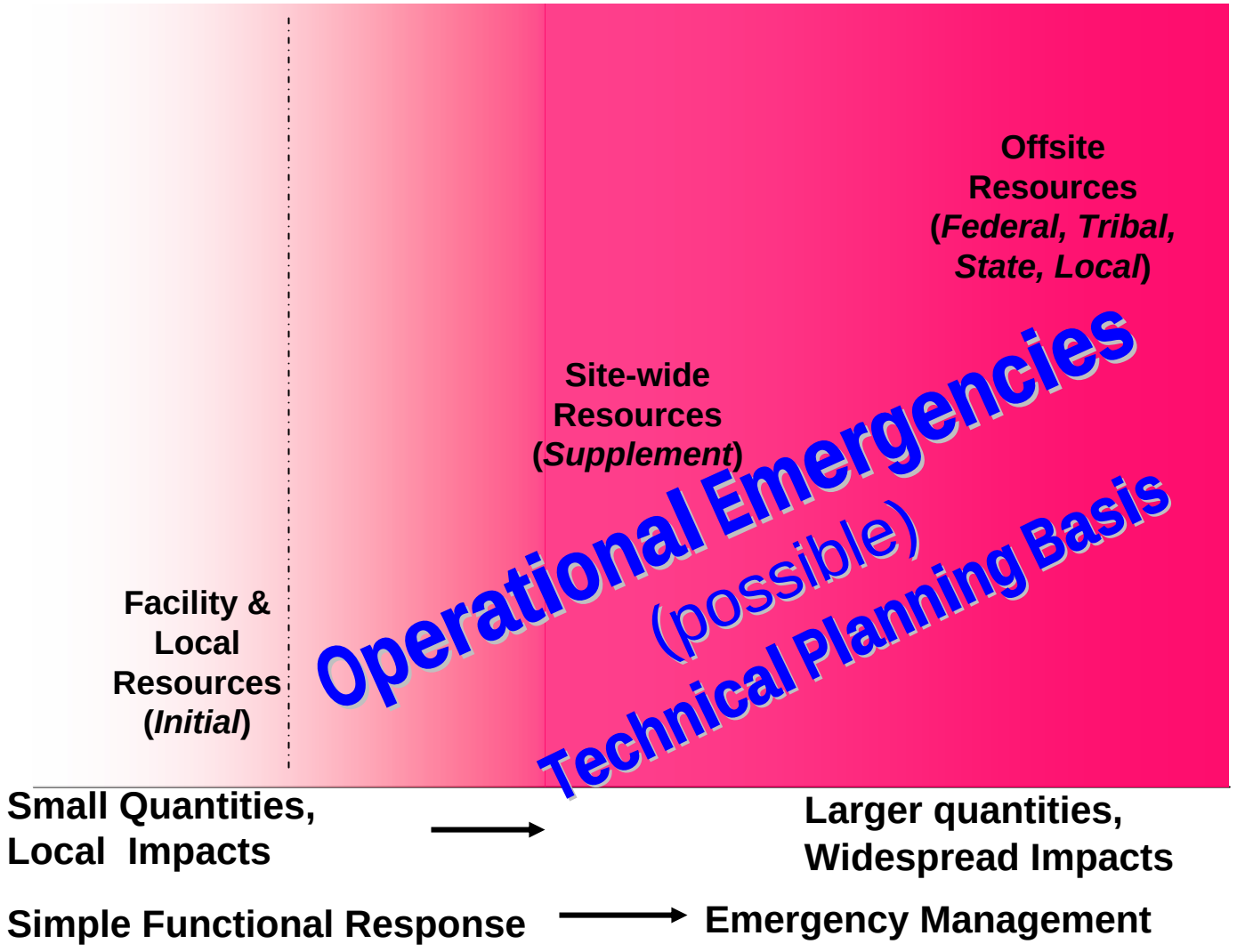
Hazardous material release event must:

- *endanger nearby personnel*
- *have potential to threaten persons beyond immediate vicinity of release,*

AND

- *require time-urgent response to implement protective actions*

Hazardous material OEs and the Technical Planning Basis



EMG Volume II, Section 2-2
Technical Planning Basis Scenarios

- a manageable number……
- systematically selected…..
- realistically analyzed…..
- representing the spectrum of..
  - materials
  - Initiators
  - consequences

A working definition….

Technical Planning Basis: A set (group) of release scenarios and associated analysis results used to determine the actions, capabilities and resources needed to respond effectively to the full range of hazardous material events at a facility/site.

How much is enough?

An ***adequate*** TPB….

- The number and diversity of analyzed cases is such that the actions, capabilities and resources needed to respond effectively to the full range of potential release events ***can be deduced from the analysis results.***

How do you build one?

1. Hazardous material screening
2. Analysis of scenarios (combinations of MARs, failure modes, initiators, release conditions, consequences, & indicators)
3. Selection of unique and/or representative scenarios for each material

Hazardous material screening (O 151.1C)

- Required: A ***screening process*** to identify specific materials and quantities for detailed analysis
- Certain materials/quantities are excluded categorically because…
  - ***Little or no potential*** for impacts & response measures consistent with OE definition
  - Impacts routinely managed by ops & HazMat response -- no evidence that hazard-specific planning & preparedness is needed

Analysis of Scenarios

Select EPHA cases by considering:

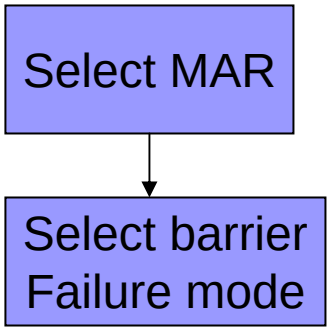
- MAR & barrier
- Barrier failure mode
- Initiating event
- Release path/release conditions
- Recognition factors (indications)
- Consequences

Selecting EPHA Analysis Cases

Select MAR

Model approach

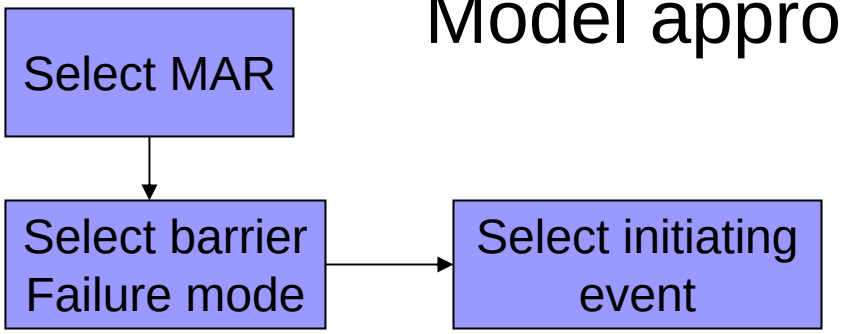
Selecting EPHA Analysis Cases



Model approach

Selecting EPHA Analysis Cases

Model approach



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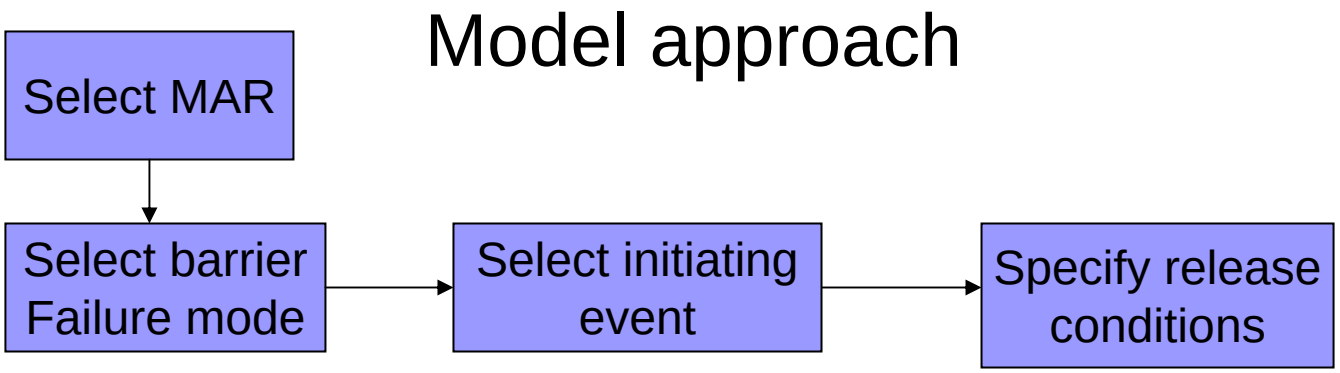

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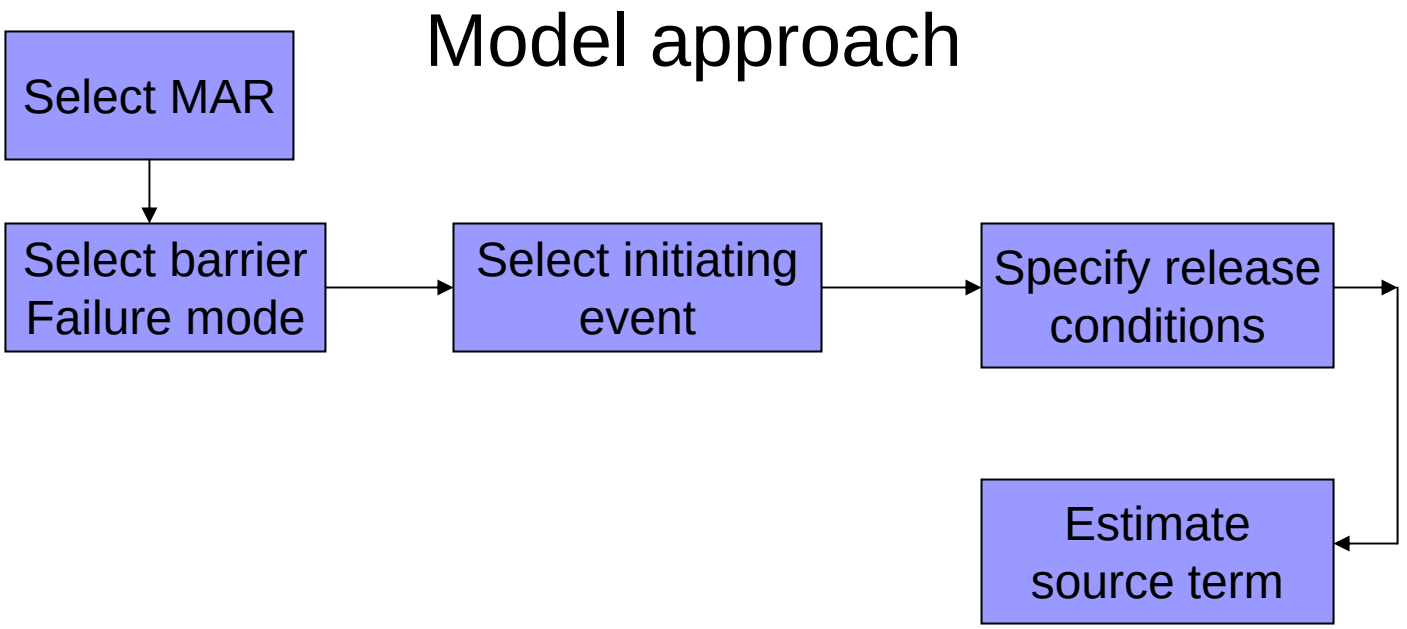

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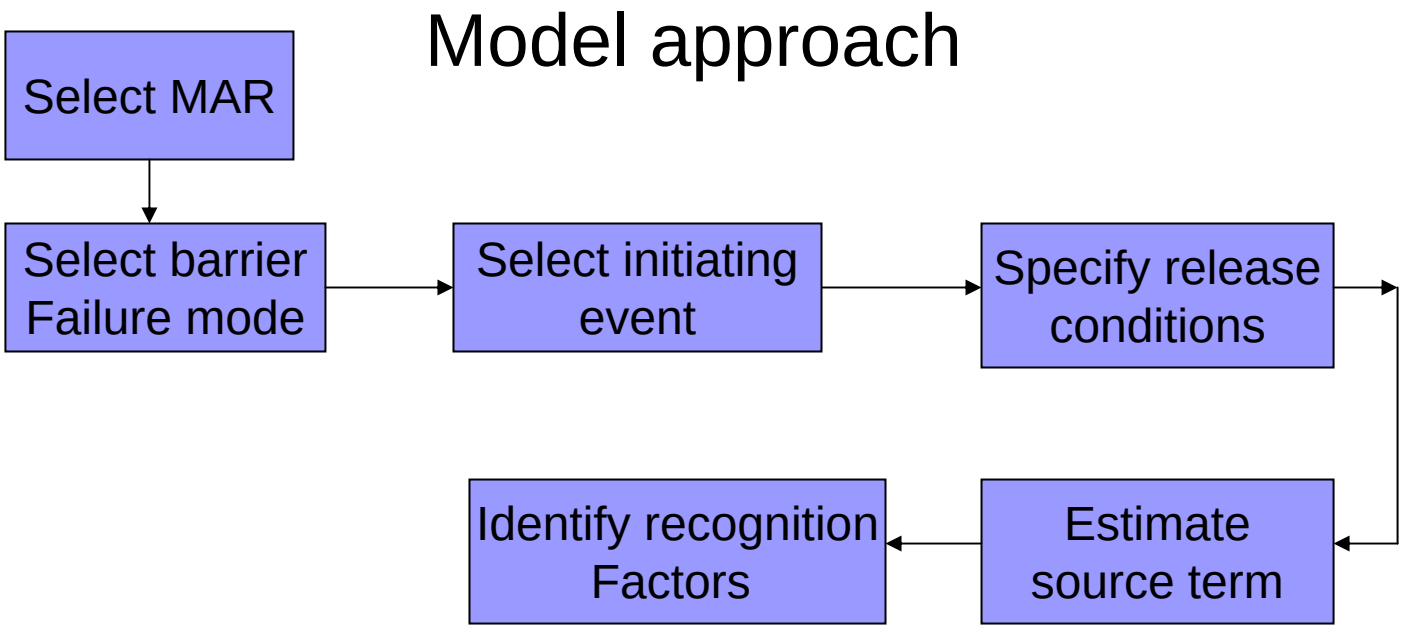

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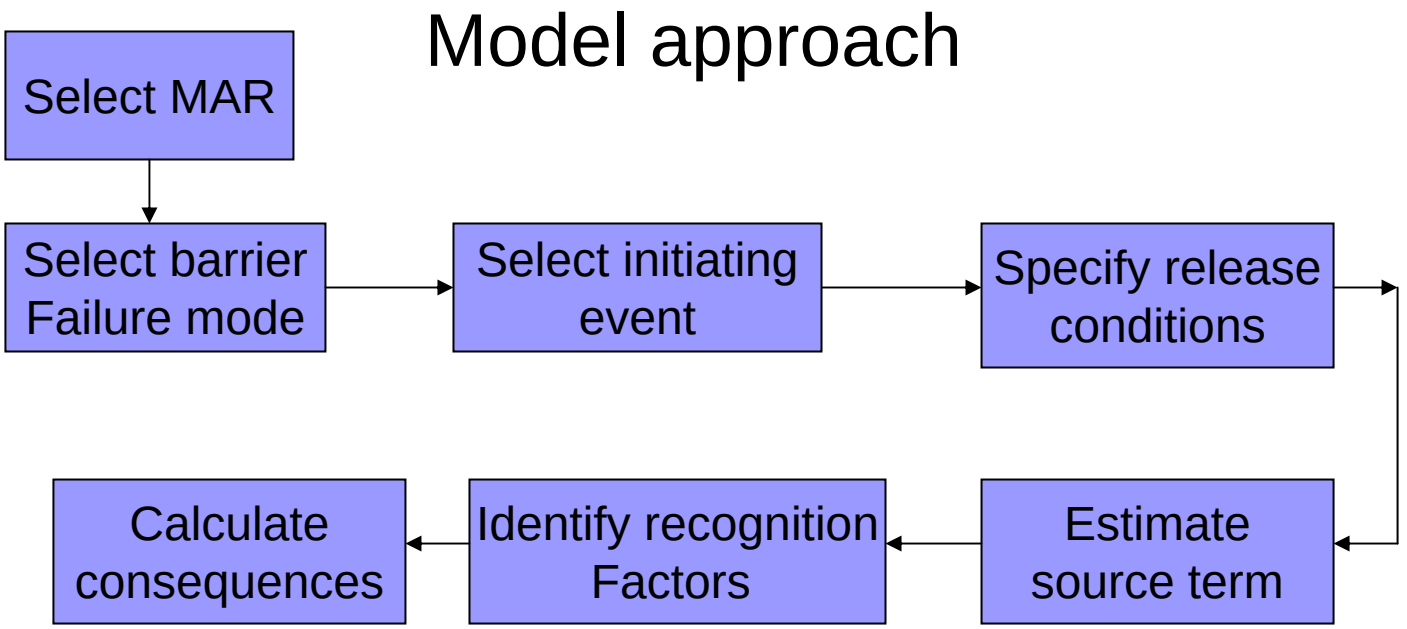

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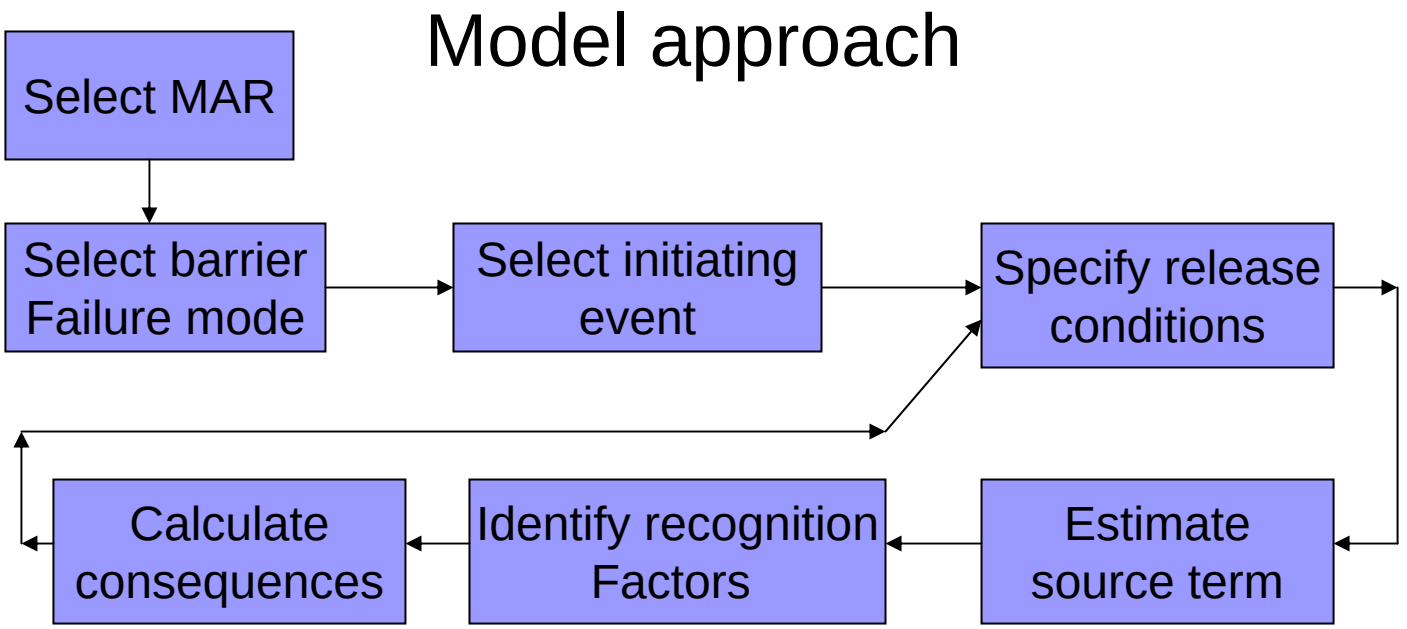

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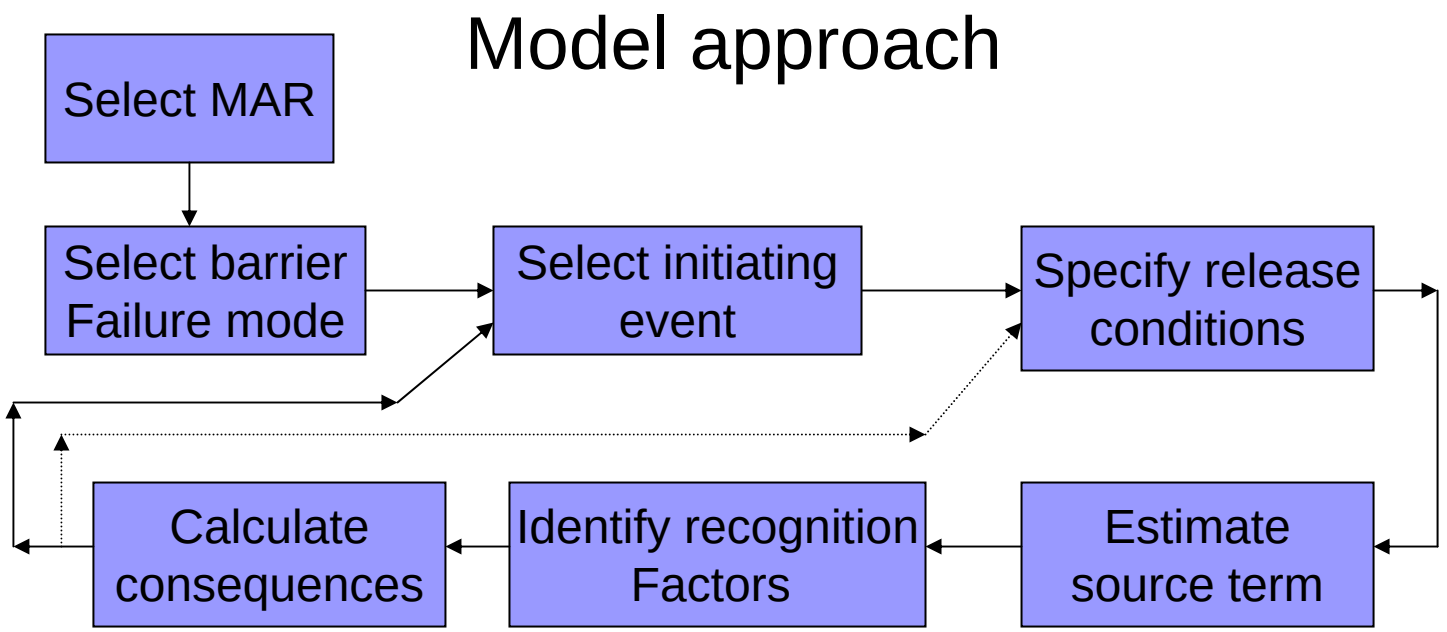

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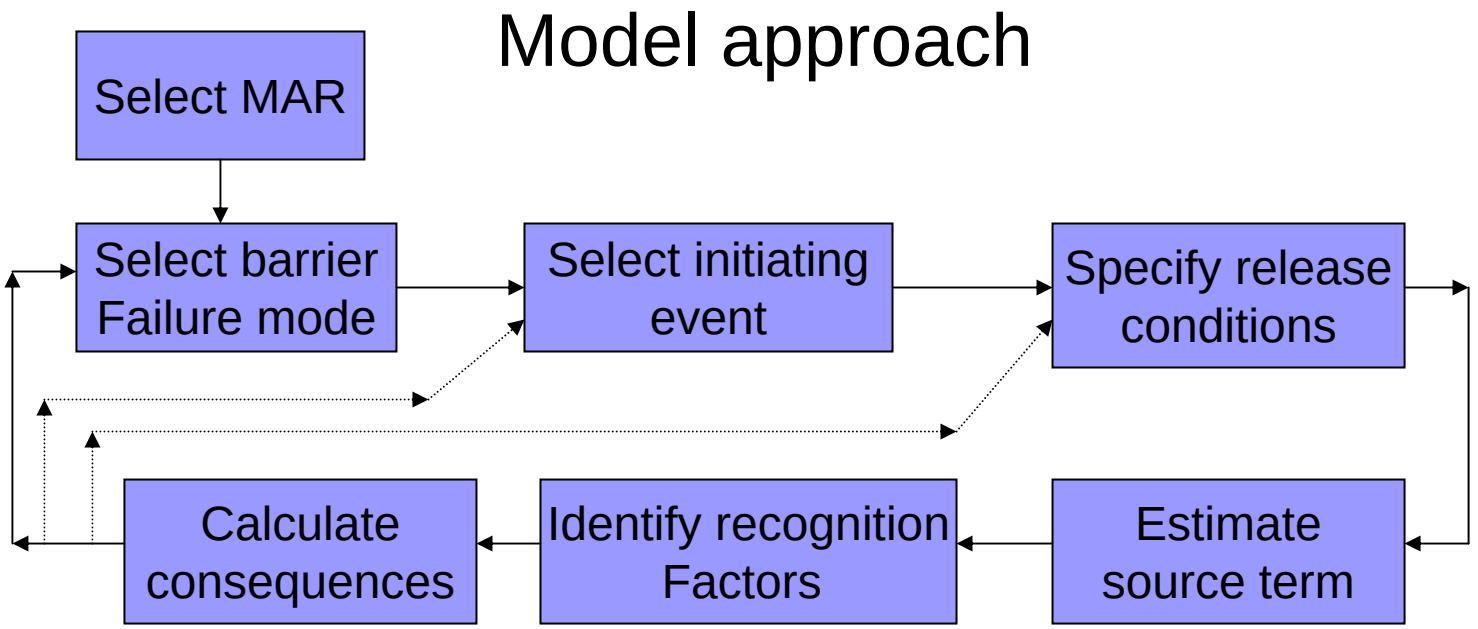

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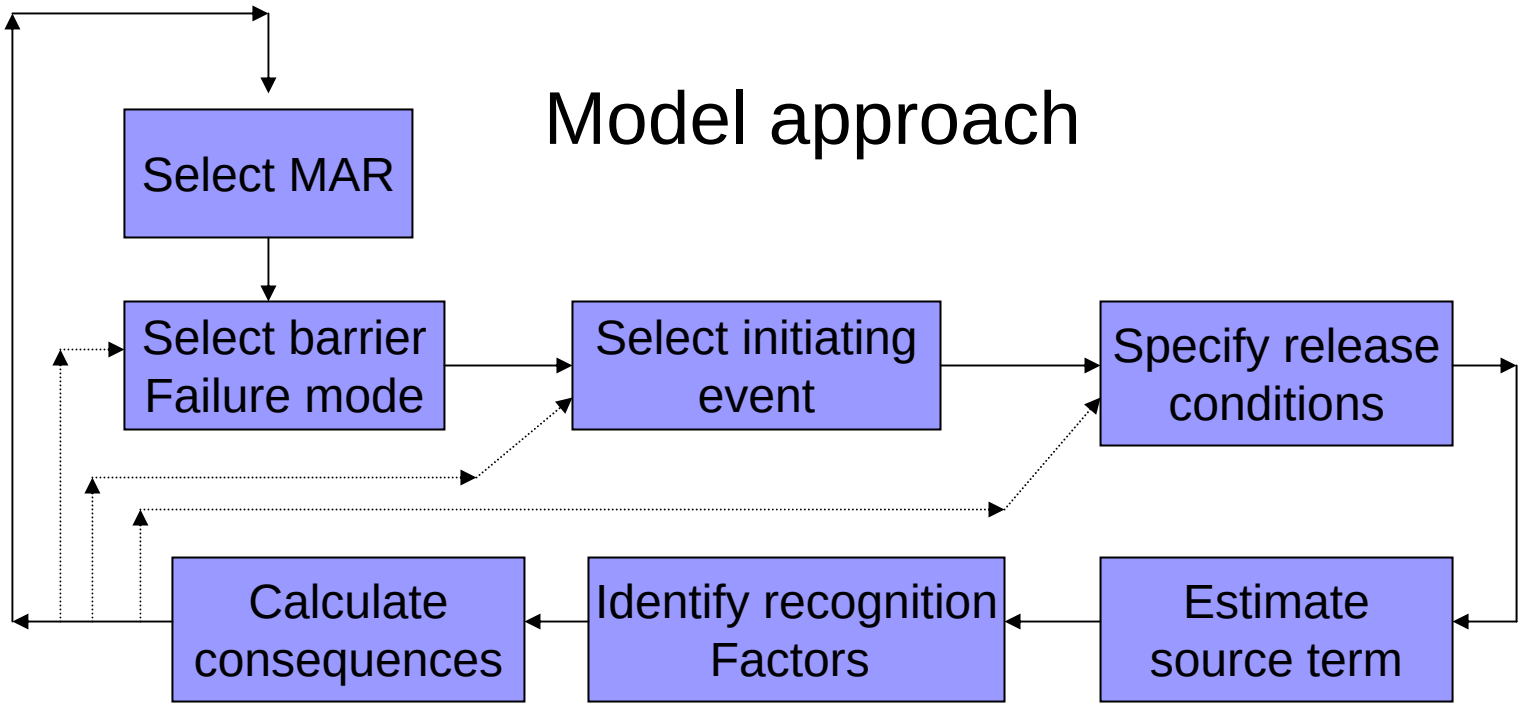


Selecting EPHA Analysis Cases

The EMG “model” approach is…

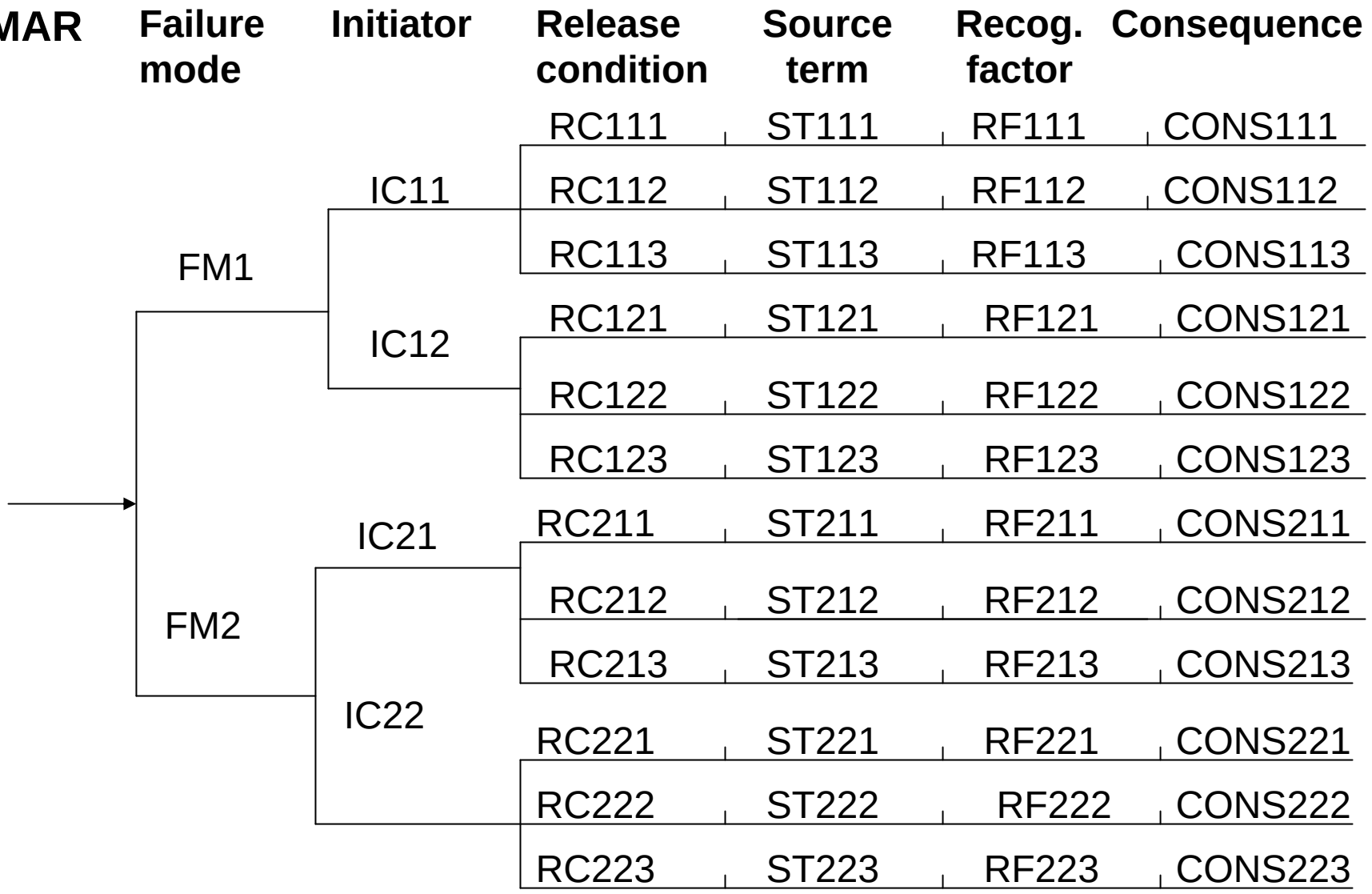
- methodical and rigorous
- “pairs” each MAR with other factors
- Provides proof that TPB is adequate

Selecting EPHA Analysis Cases

But what if I can see that…..

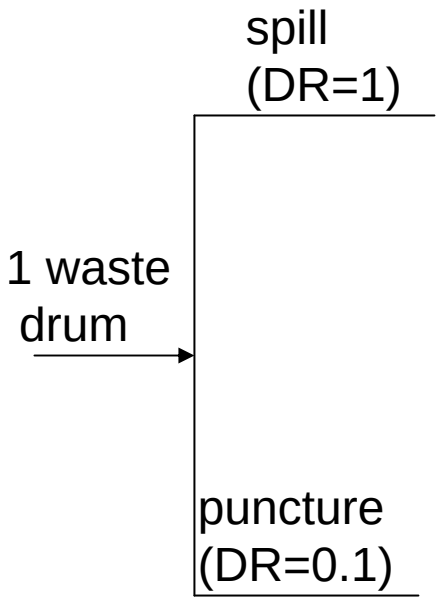
- source terms are the same, or
- consequences can be inferred (scaled) from another case, or
- indications would be the same, or
- won't be able to distinguish this from the other in real time, or…..

Selecting EPHA Analysis Cases



Selecting EPHA Analysis Cases

MAR	Failure mode	Initiator	Release Condition (LPF x X/Q)	Source term	Recog. factor	Consequence



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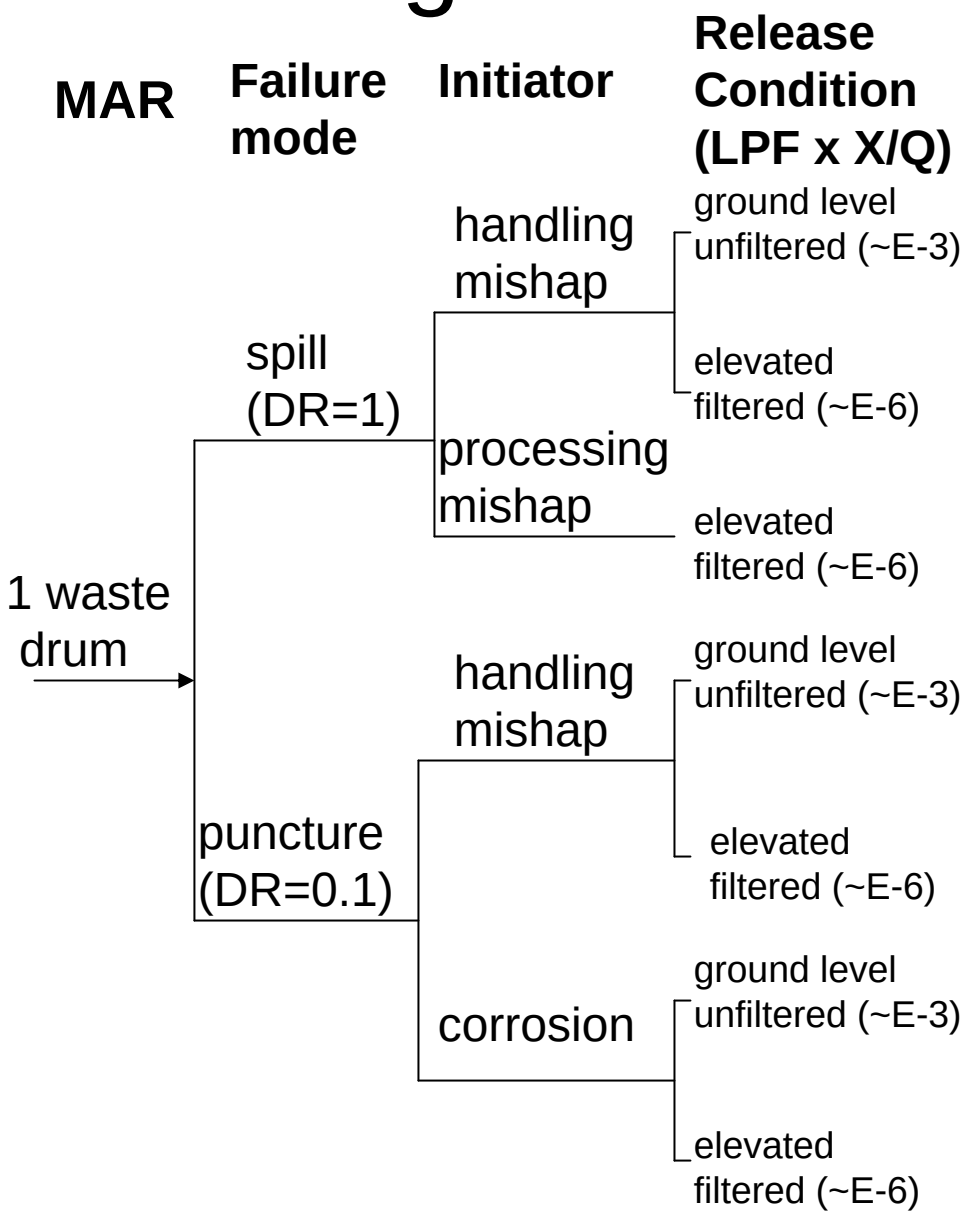

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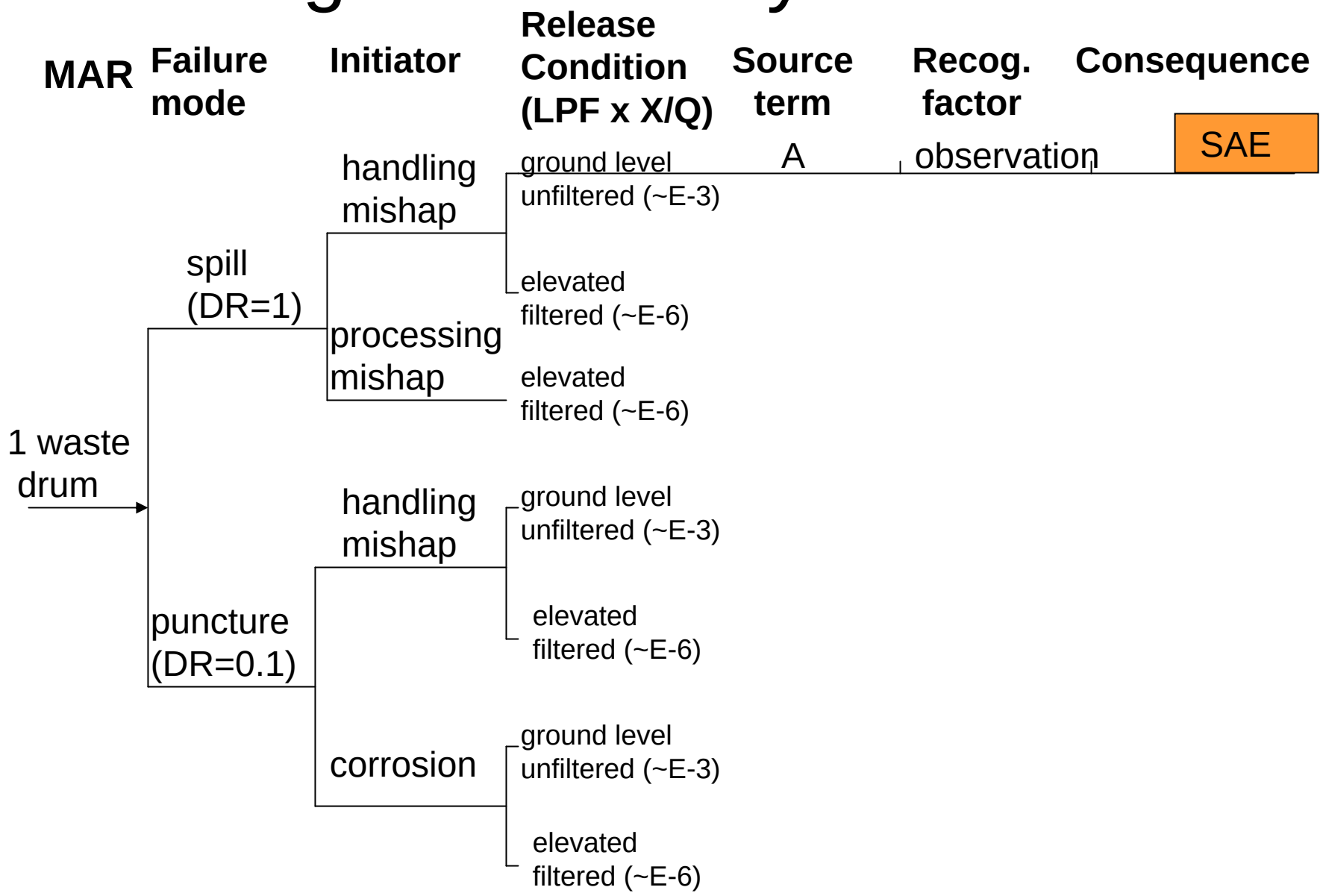

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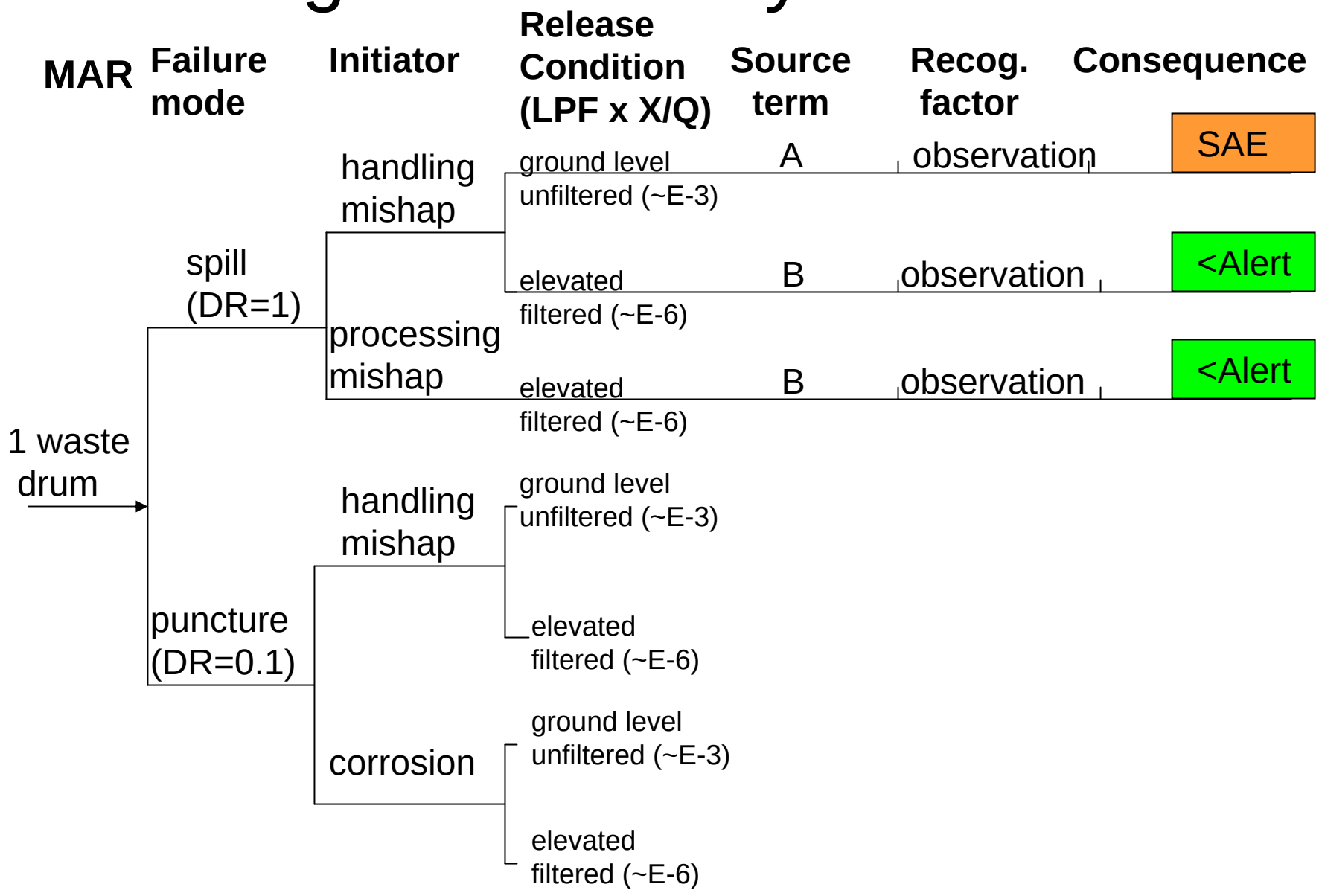

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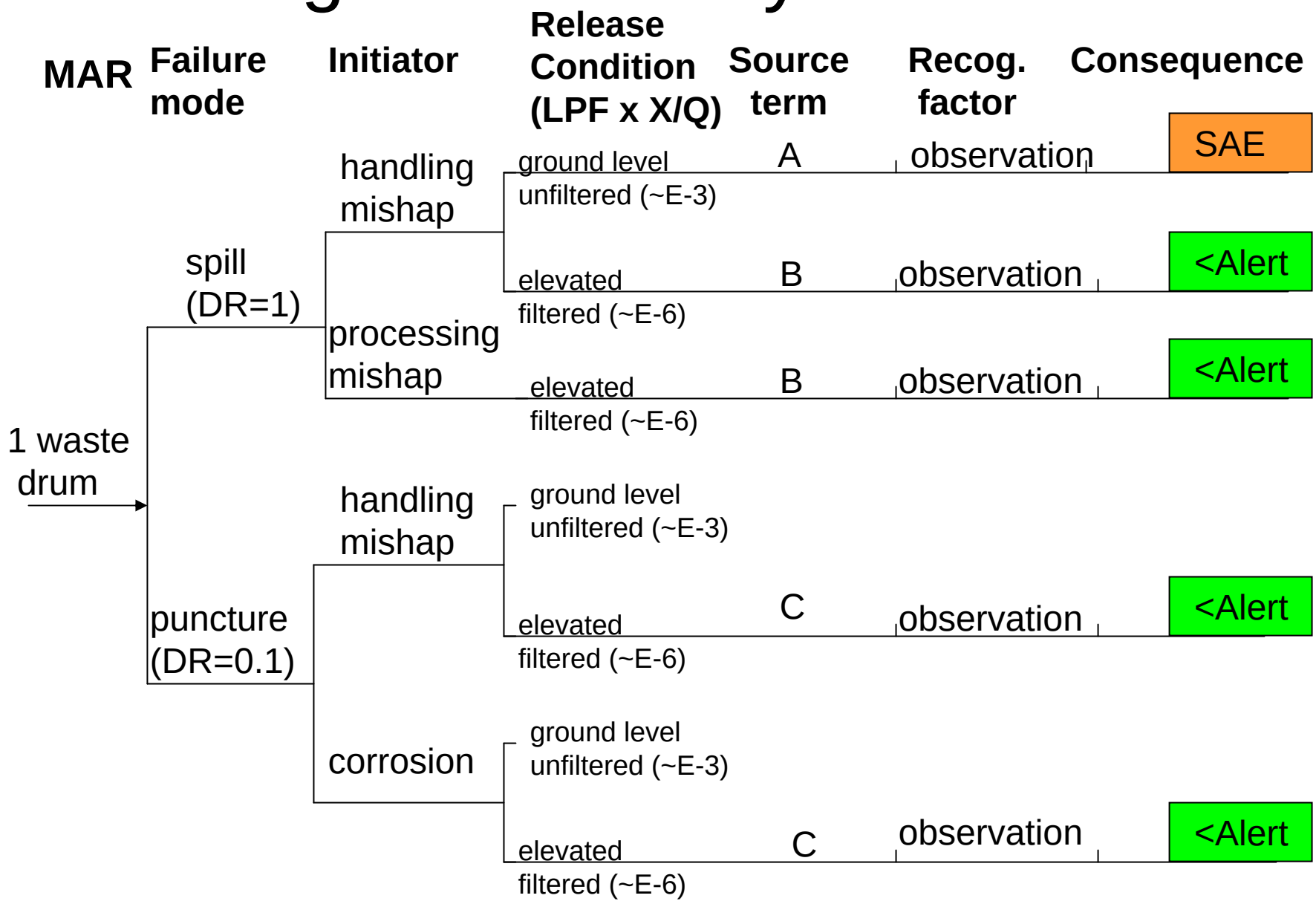

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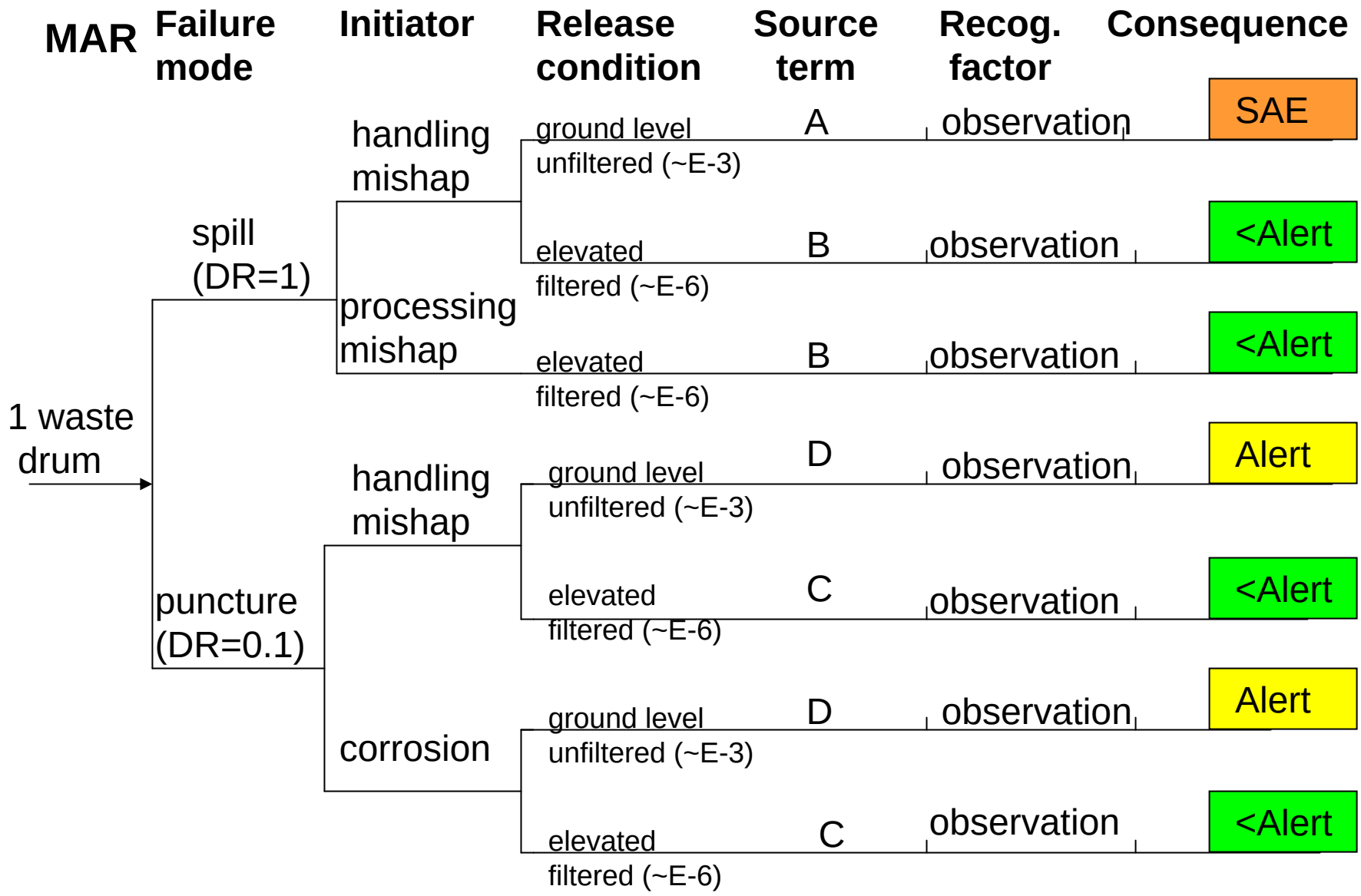

Is your TPB adequate?

New scenario??

1. Are consequences sufficiently different from cases already analyzed that it would be classified at a different level?
2. Could this case be distinguished from others already analyzed?
3. If so, how would it affect the program (would I planning/preparedness change in any way?)

Summary

A Technical Planning Basis is:

- more than just the EPHA scenarios
- scenarios + results + insights gained from those cases
- adequate if actions, capabilities and resources needed to respond effectively to the full range of potential release events can be deduced from the analysis results.