



U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

RIC 2007
**Overview of NRC Environmental
Dose Assessment**

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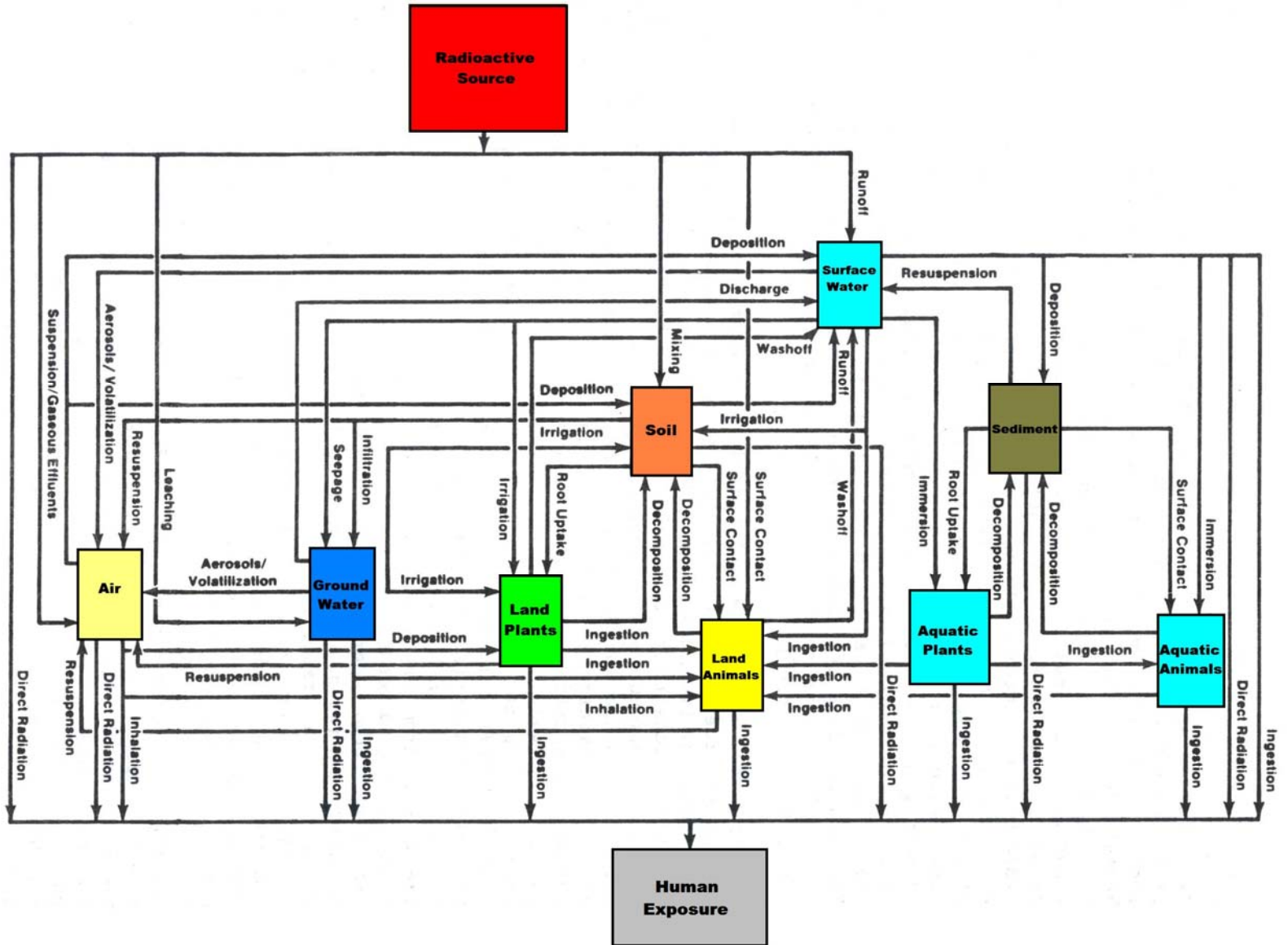
Office of Nuclear Regulatory Research

March 14, 2007

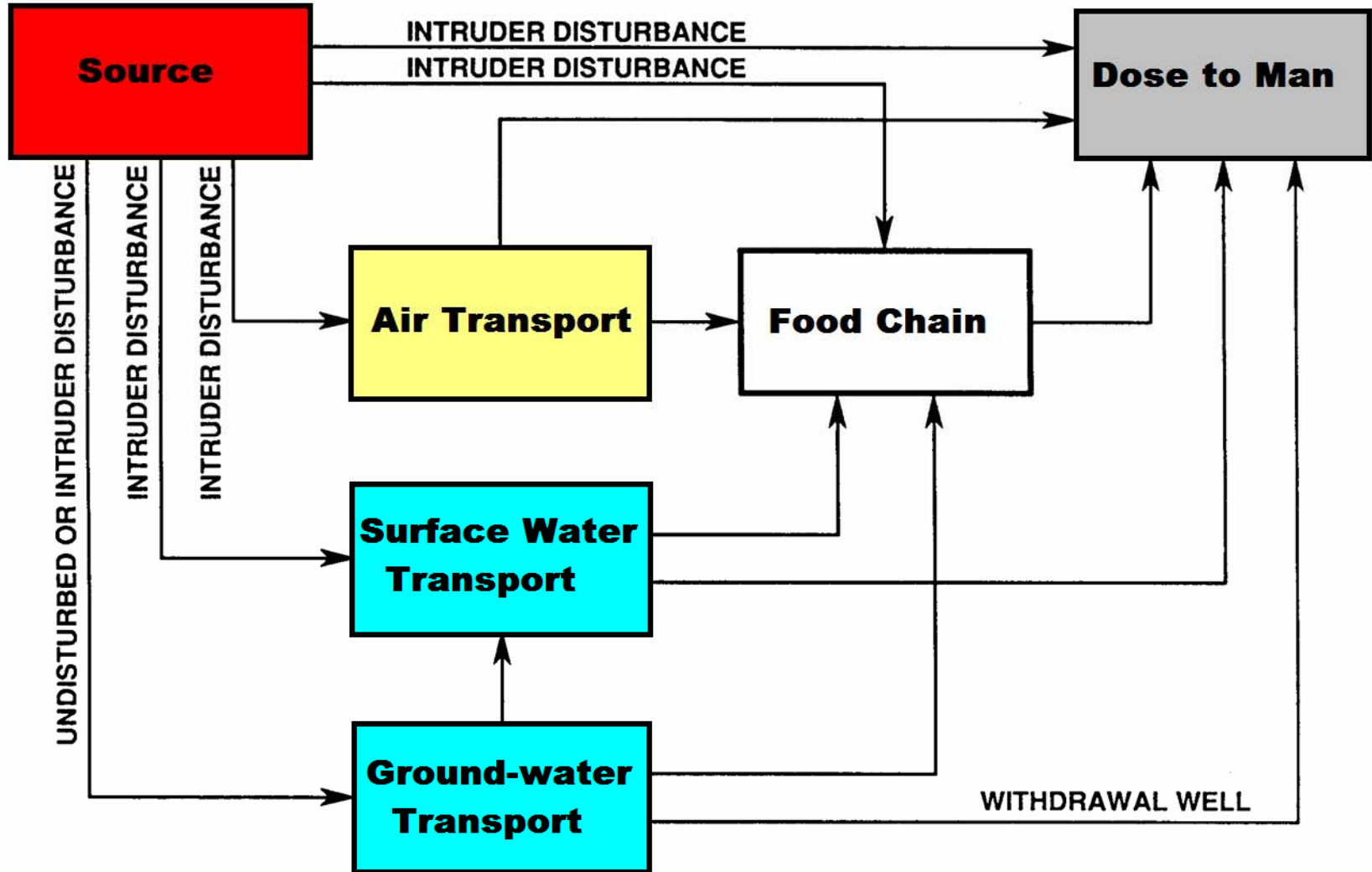
Environmental Dose Assessment

- **Chronic** rather than **Acute** – human “insult” from cumulative lower doses over extended periods (years to decades); not “brief” (minutes to months) high doses.
- **Risk from High Probability-“Low” Consequence** rather than **Low Probability-High Consequence** – small releases to the environment are almost inevitable over extended periods.
- **Complex Environmental Pathways for Longterm Exposure** rather than **Dominance of “Brief” External or Inhalation Exposures** – long time periods lead to potential importance of multiple pathways through multiple media leading to human exposure.

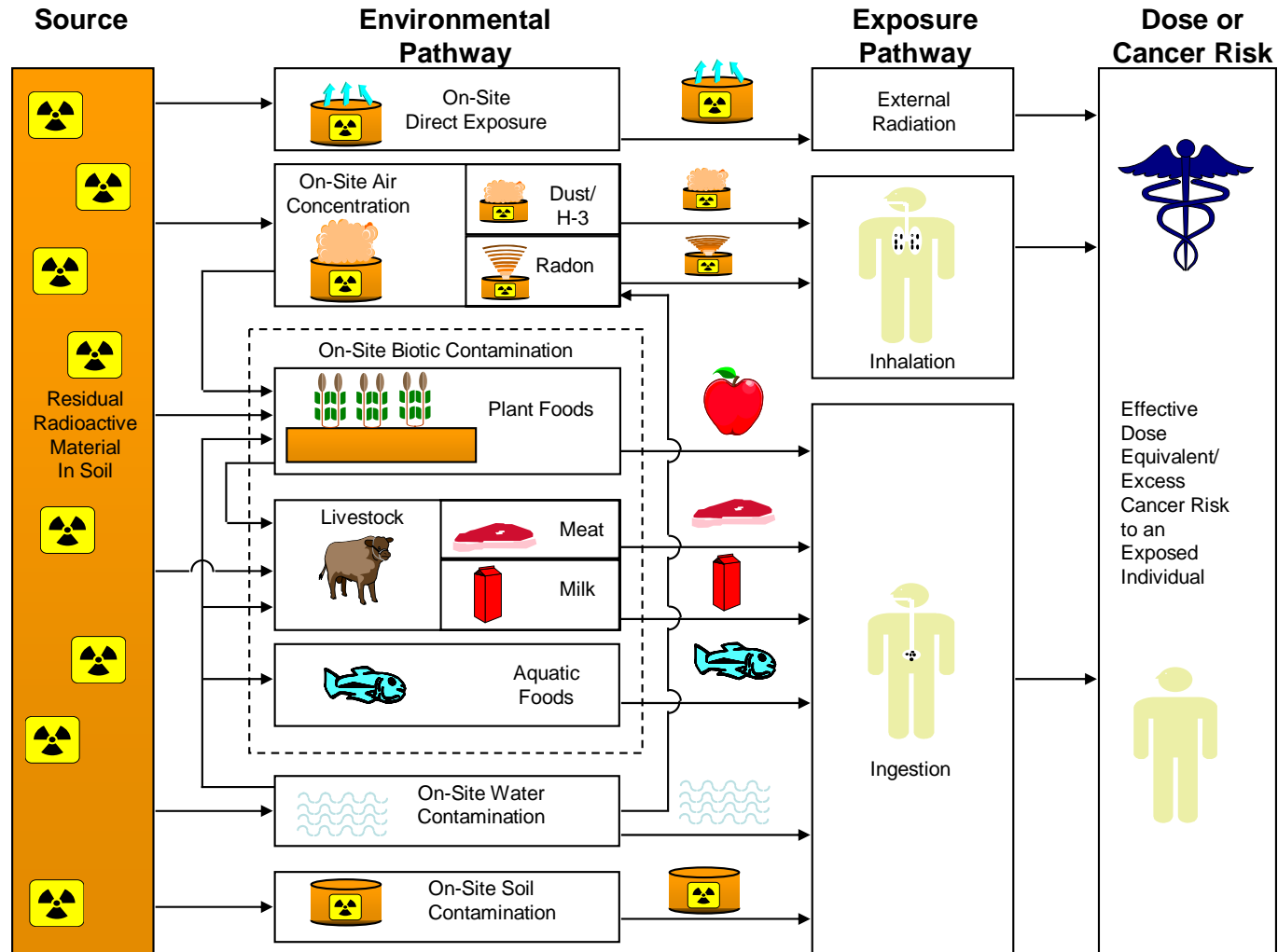
Potential LLW Pathways



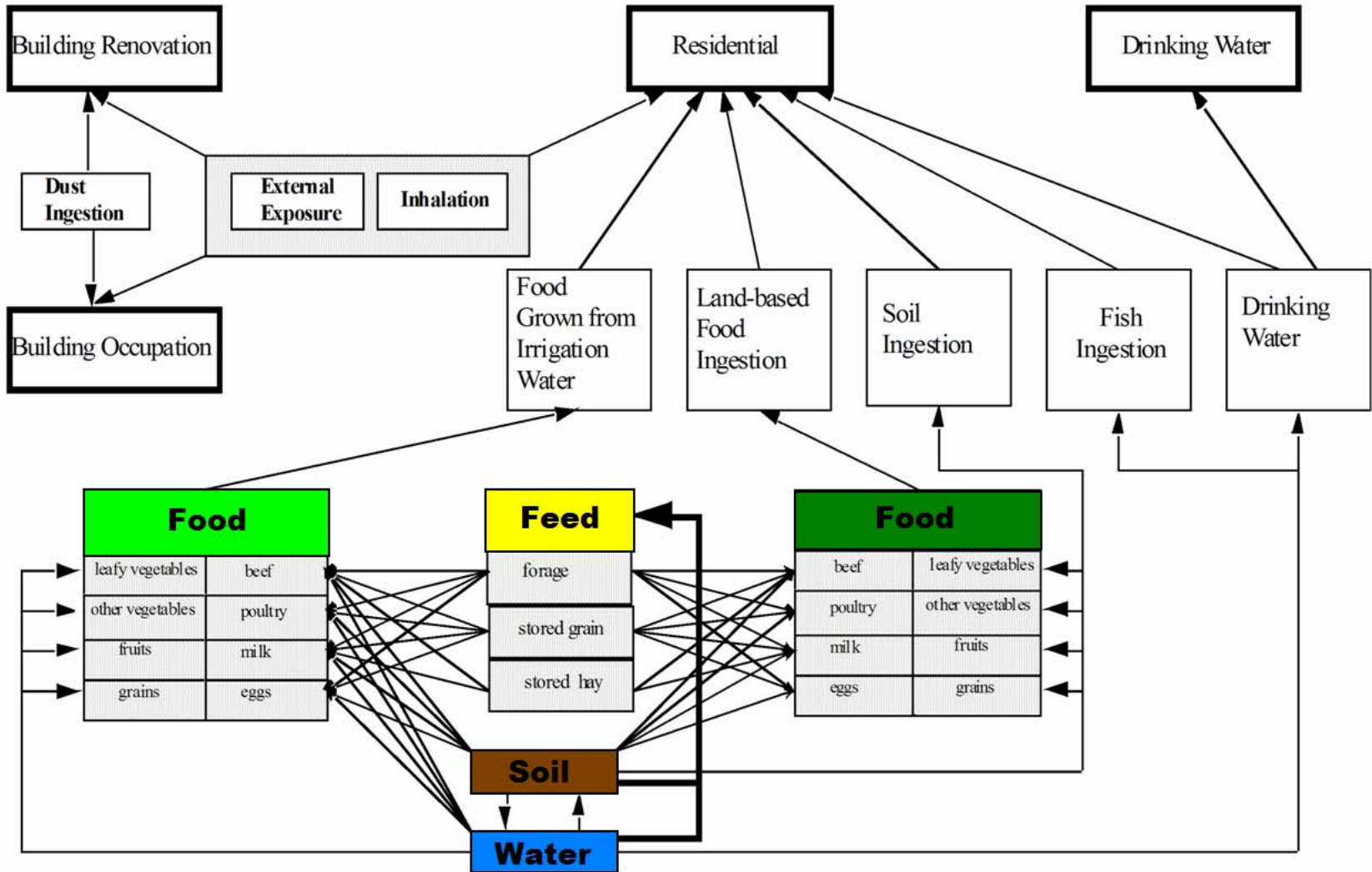
“Significant” LLW Pathways



RESRAD Pathways



DandD Pathways



DandD-Code Schematic

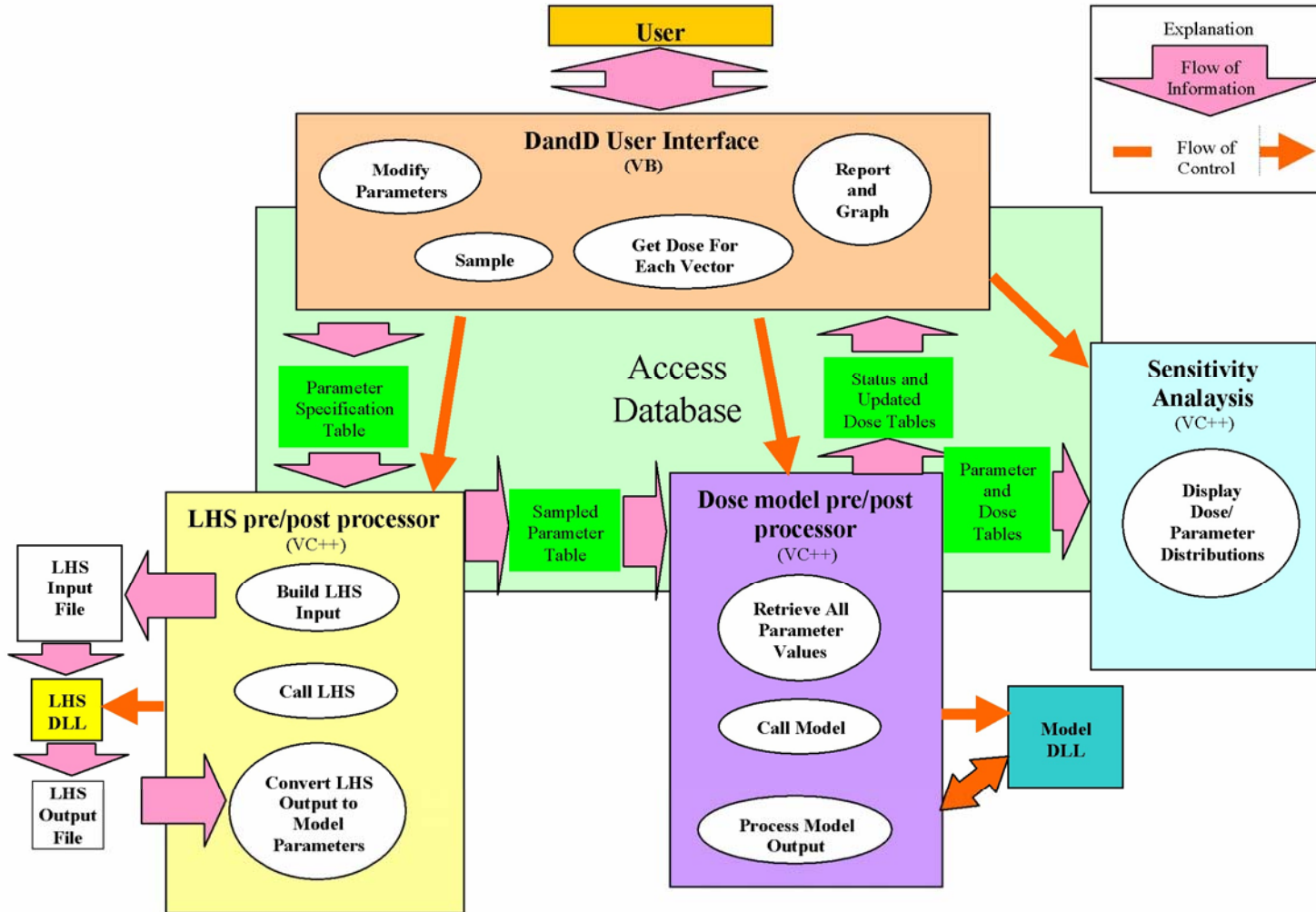
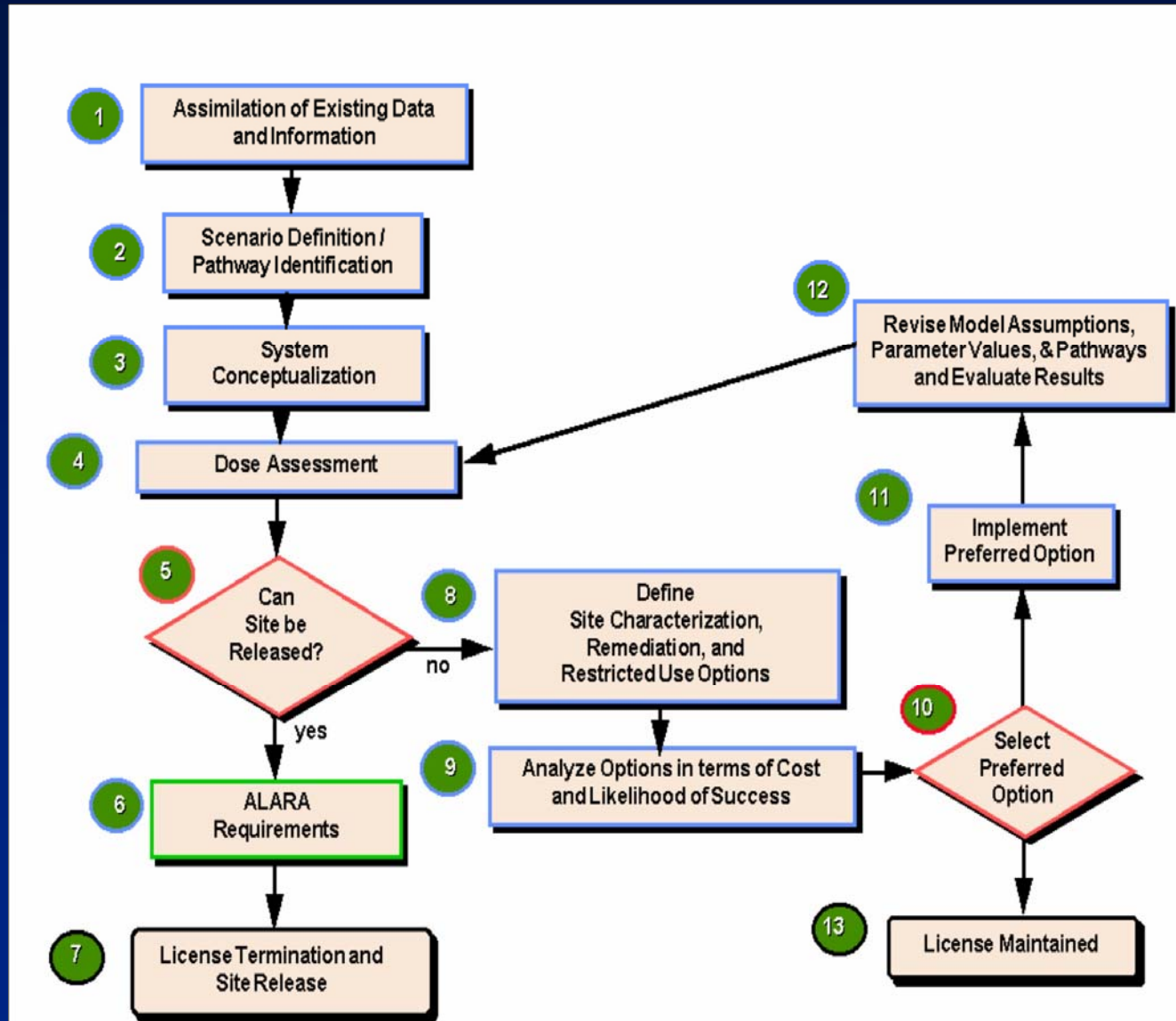


Figure 1.2 Information flow in DandD Version 2.1



NRC Decommissioning Framework



Realism versus Conservatism

For some pathways, conservatisms lead to:

- excessive burdens,
- unverifiable models,
- inflexible solutions.

Thus, we are moving to add realism for a finite set of cases for limited pathways.