Radioactive Waste Management

ViSI: RWM’s digital safety case management tool

Oliver Hall & Lucia Gray

Radioactive Waste Management

The safety case

“An environmental safety case is a set of claims concerning the environmental safety of disposals of solid radioactive waste, substantiated by a structured collection of arguments and evidence.”

Environment Agency – Guidance on Requirements for Authorisation

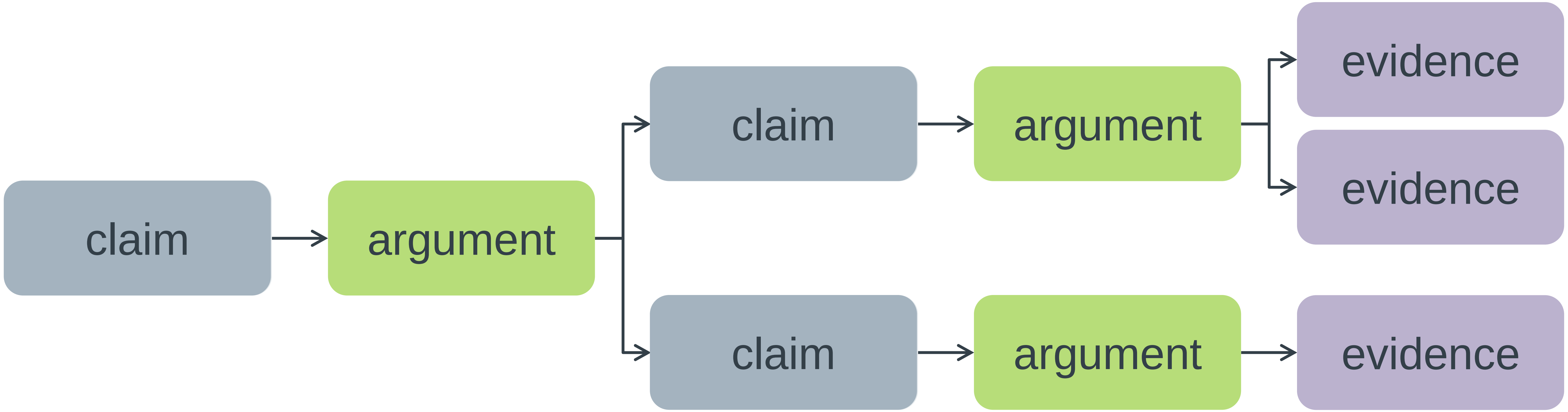
“A safety case is a logical and hierarchical set of documents.” “The safety case clearly sets out the trail from safety claims through arguments to evidence.”

Office for Nuclear Regulation – Safety Assessment Principles for Nuclear Facilities

- RWM is looking to emphasise this logical, structured format in its safety cases and is currently developing a generic claims, arguments, evidence (CAE) diagram which illustrates the safety case in an explicit CAE structure.

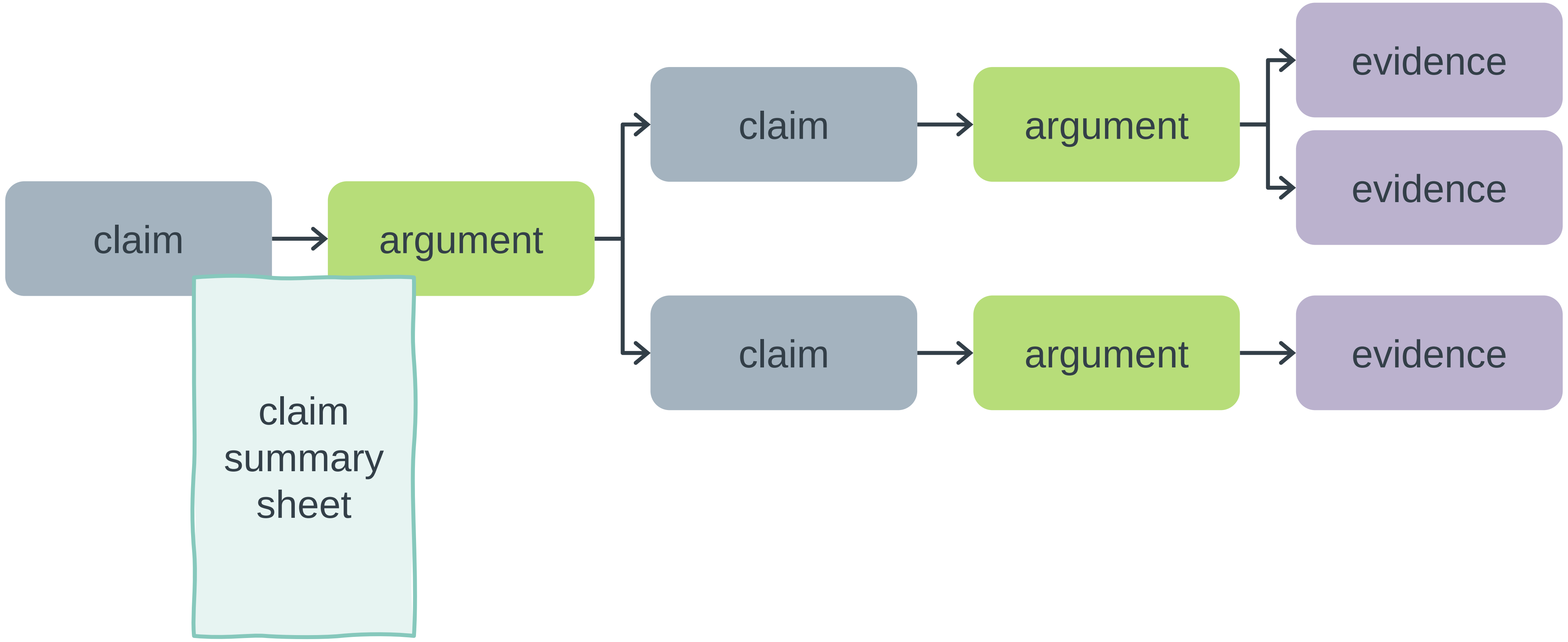
CAE terminology

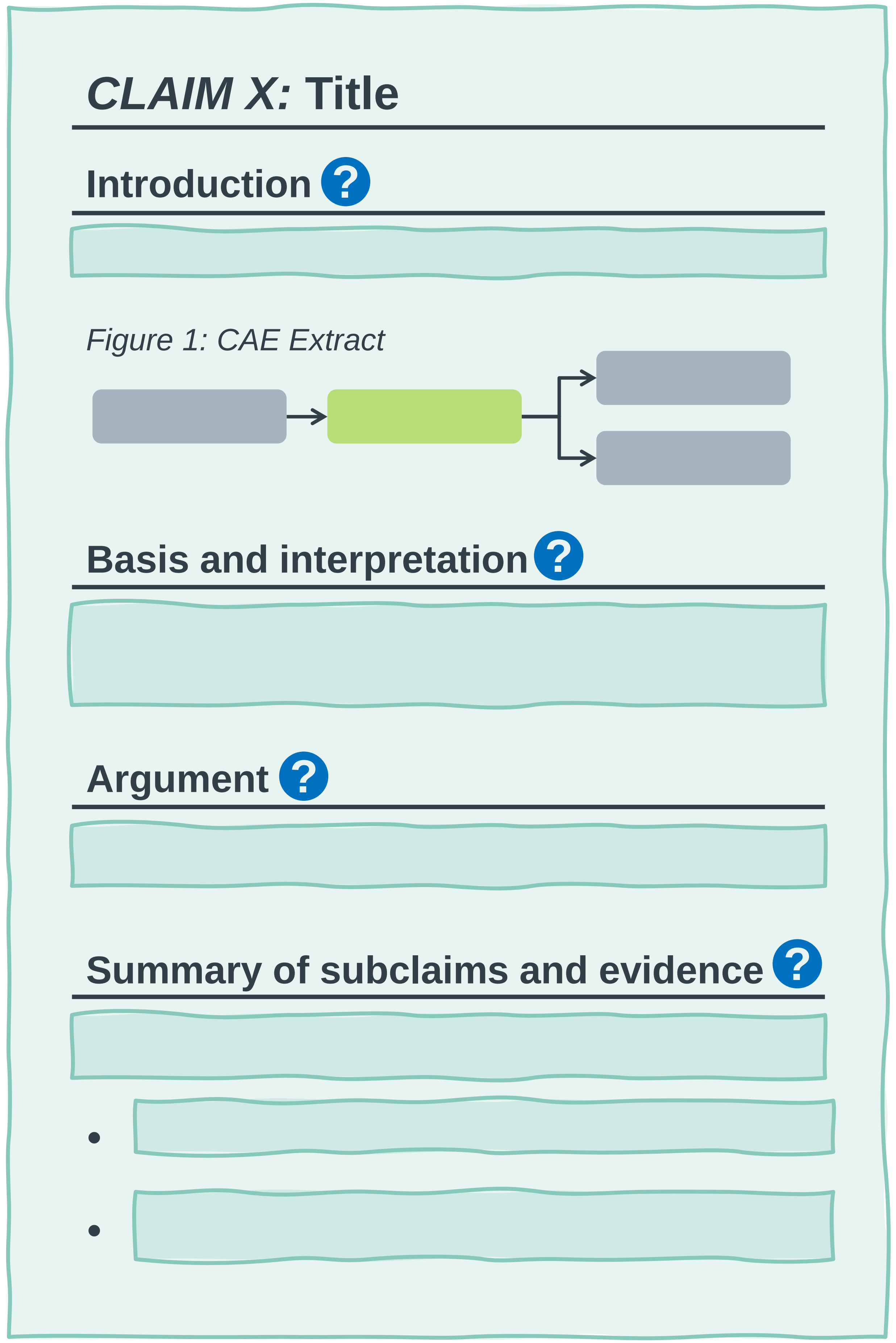
- claims are assertions put forward for general acceptance.
- evidence provides the basis of justification for a claim.
- arguments provide an explanation of how the collective sub-claims/evidence demonstrate a claim.



Summary sheets

- Each claim in the diagram has an underlying summary sheet associated with it.





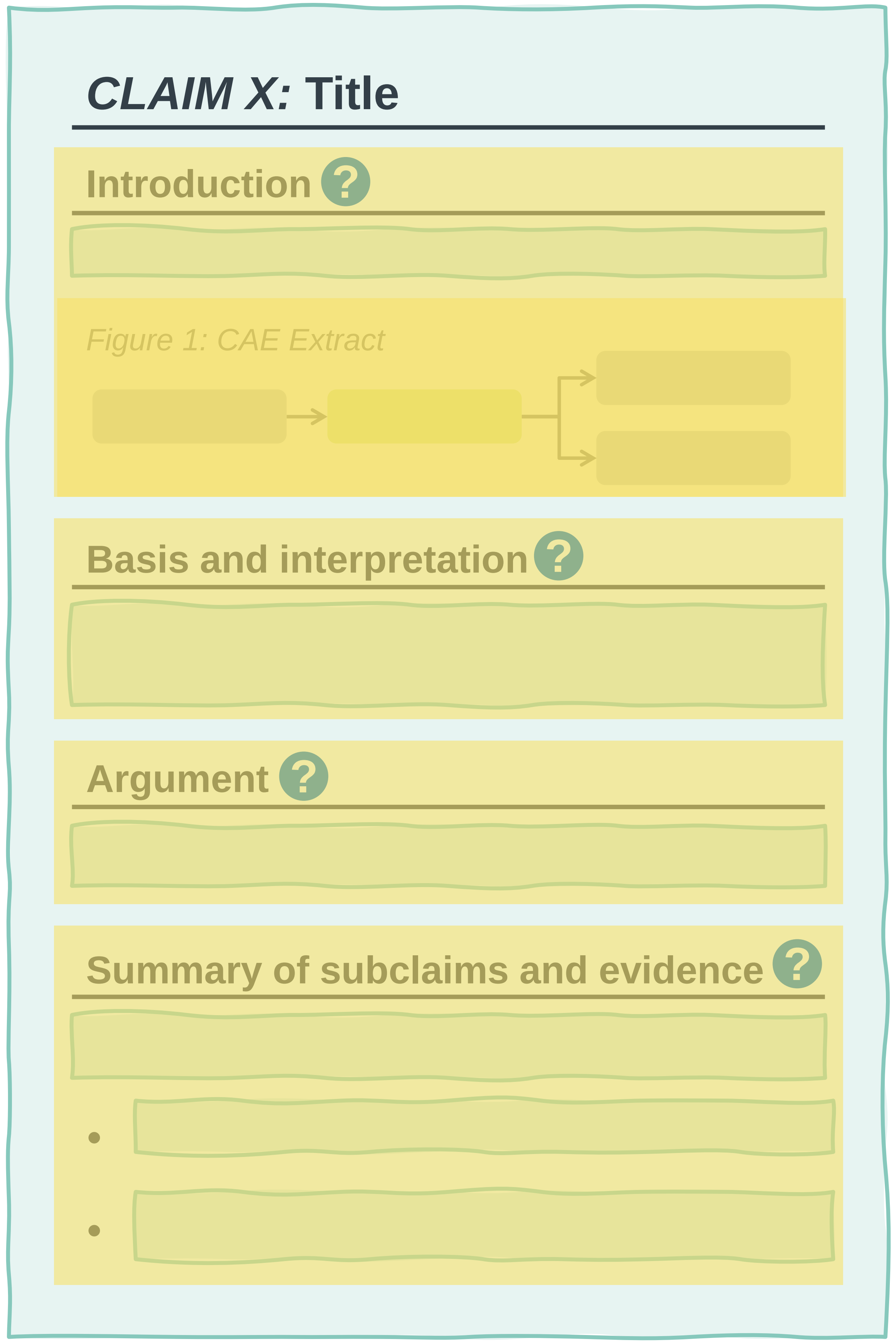
Radioactive Waste Management

- Provides the safety case context for the claim by explaining why we are making the claim from a safety case perspective.
- Includes an extract from the CAE diagram, showing the claim, the sub-claims and evidence that underpin it, and the argument that links them.

- Describes the claim RWM is making.
- Provides relevant guidance, regulatory and legislative context and any interpretation that has been applied.
- Includes links to documents explaining RWM's own stance, and to sponsor and system requirements within RWM's requirements management system, which may inform the claim or be derived as a consequence of it.

- Provides an explanation of the logical connection between the claim and its subclaims/evidence, but does not make any assertions about the logical correctness of any subclaims.

- Provides a brief summary of the subclaims and evidence that underpin the claim, with links to corresponding pages.



ViSI

- **ViSI: Vi**sualisation of **S**ystem **I**nformation

> ViSI is a **digital safety case management system** designed to display RWM's environmental safety case and the underpinning knowledge in an accessible and traceable way.

- ViSI is now available on the NDA's secure cloud platform for authorised external users

ViSI's vision statement - goal

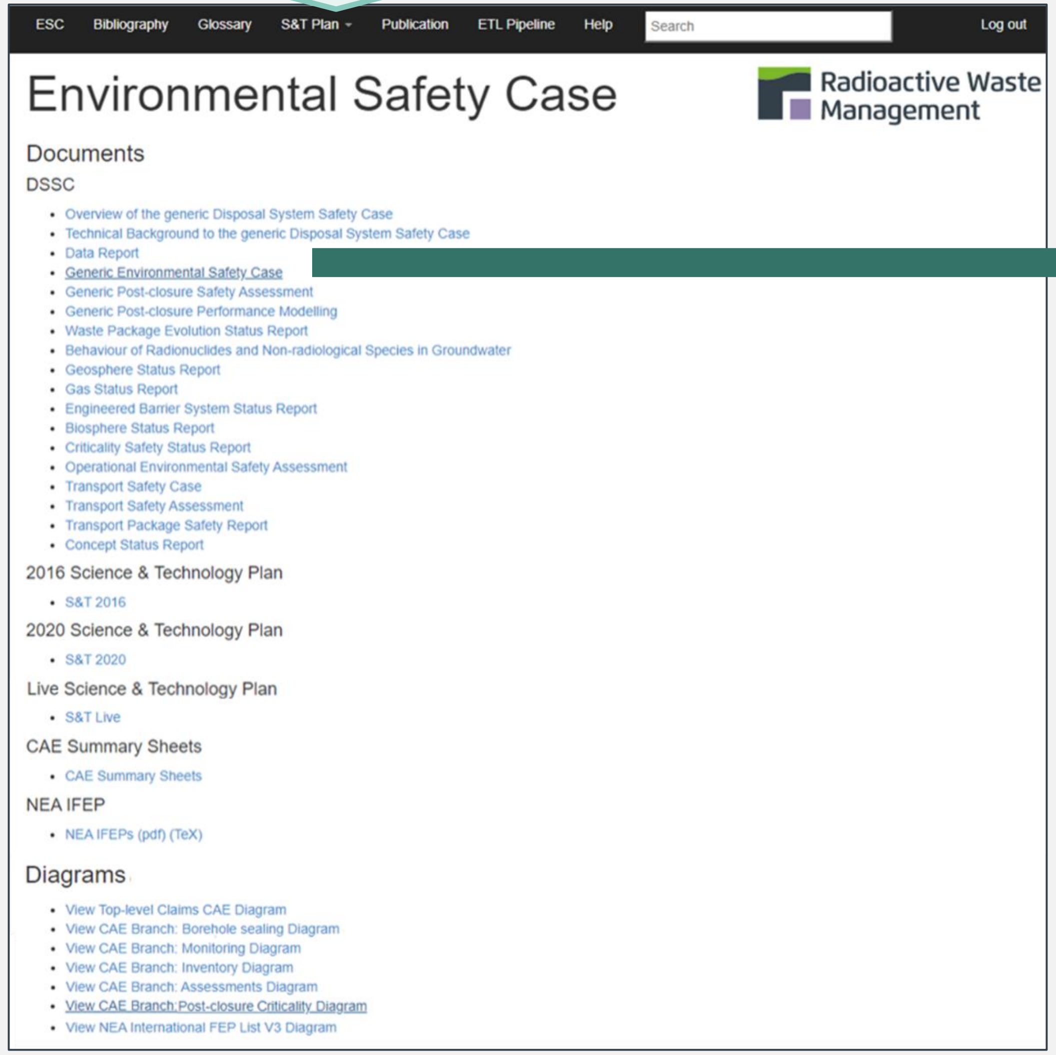
- ViSI's goal is to:
  - manage the large and growing body of safety case information,
  - author safety case content, manage configuration and control changes to it,
  - provide a 'golden thread' of traceability between safety claims articulated within the safety case and evidence provided in the underlying knowledge base,
  - support RWM in planning its technical programme by aiding research identification and prioritisation, while also aiding concept selection and waste management, and
  - allow users to navigate, view and search all content intuitively.

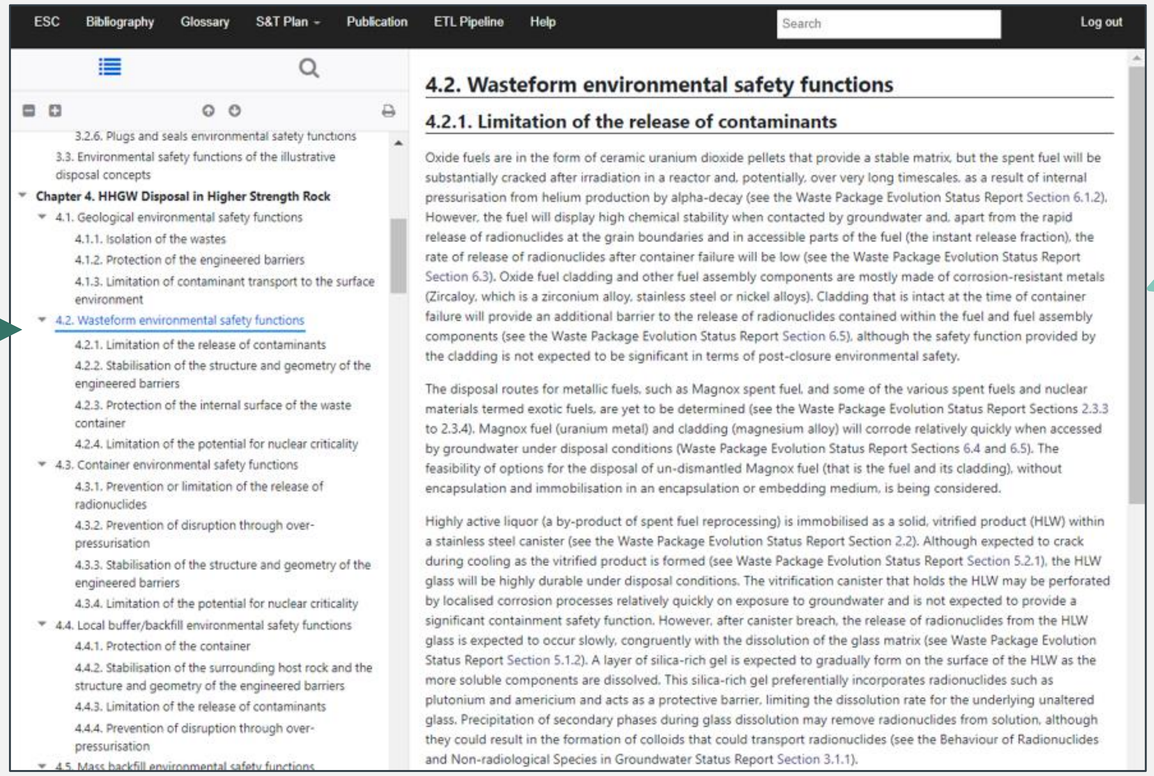
ViSI’s vision statement - approach

- The approach taken is to:
  - use digital technologies to allow users to intuitively write, navigate, view and search all content, interrogate the safety case and trace the ‘golden thread’,
  - introduce an explicit presentation of the ESC claims, arguments and evidence structure, and
  - make ViSI available, as needed, to RWM staff, its supply chain and Regulators.

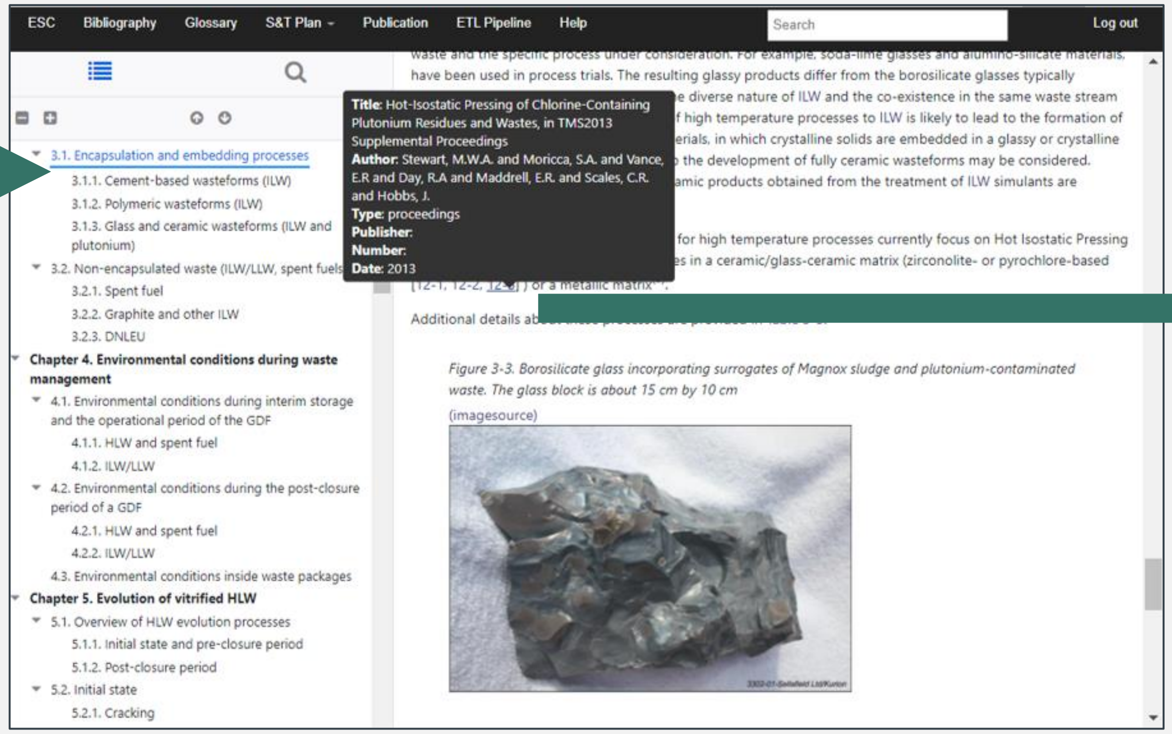
ViSI’s safety case document collection

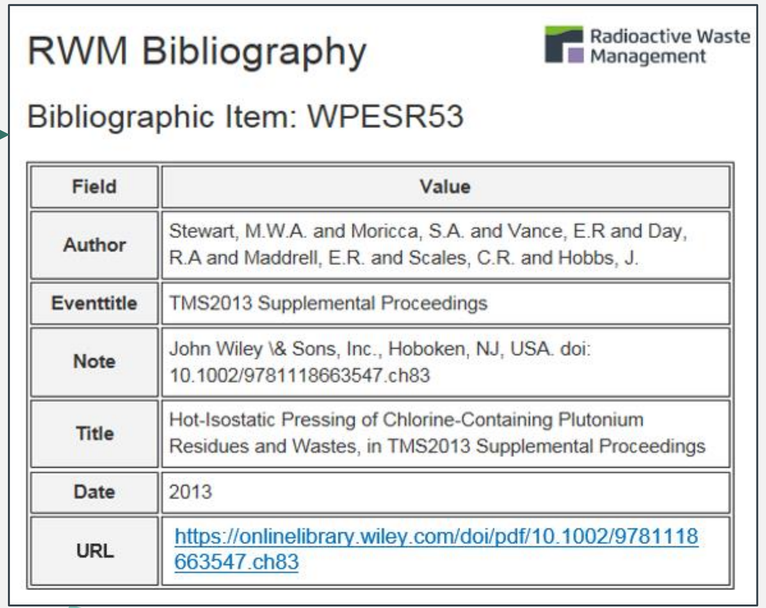
All safety case documents and diagrams can be loaded from the home page.





Safety case documents are displayed as navigable, structured web pages in ViSI.

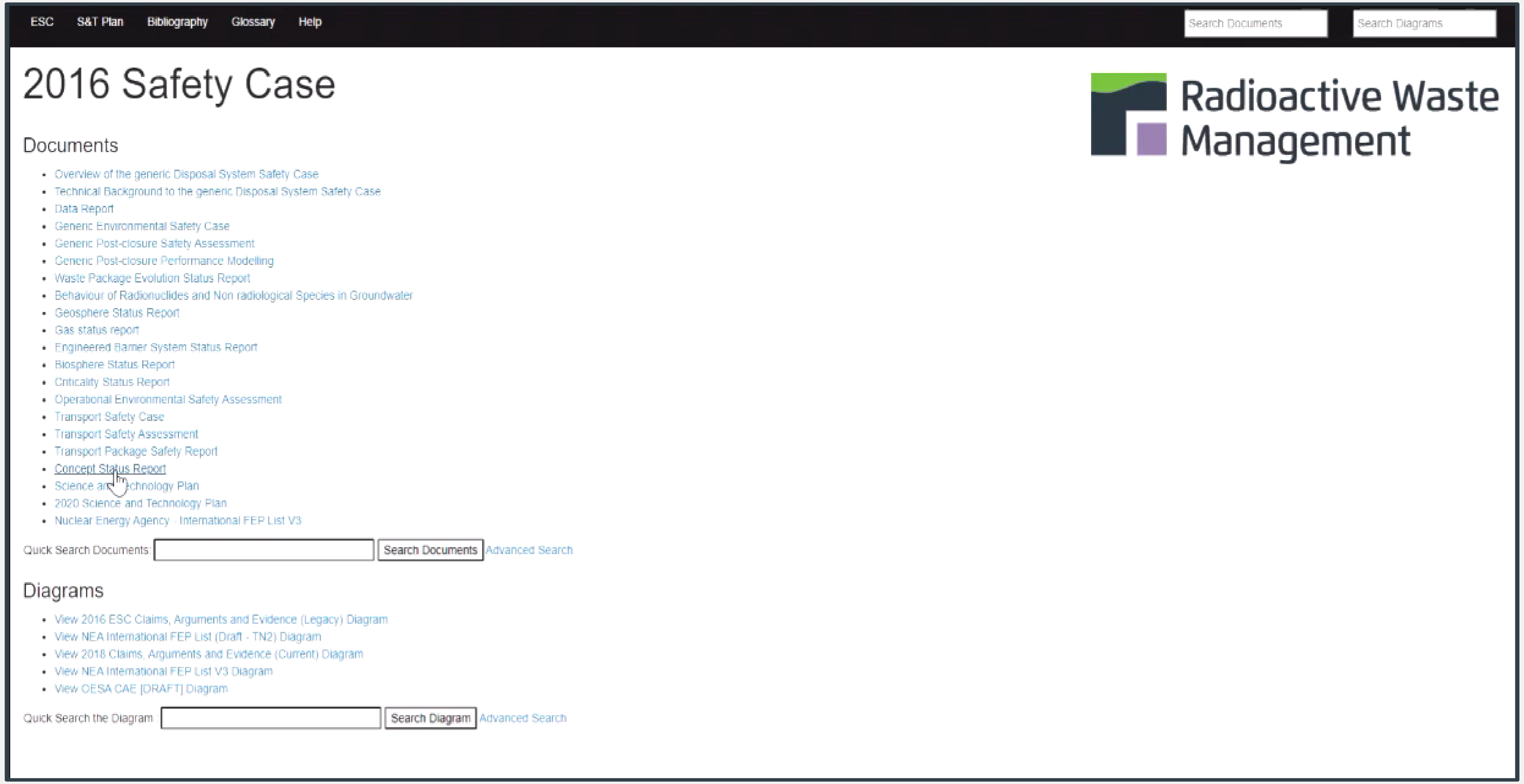




References to other sections, RWM’s bibliography and pages displaying metadata are rendered as hyperlinks.

Radioactive Waste Management

ViSI demonstration – document collection

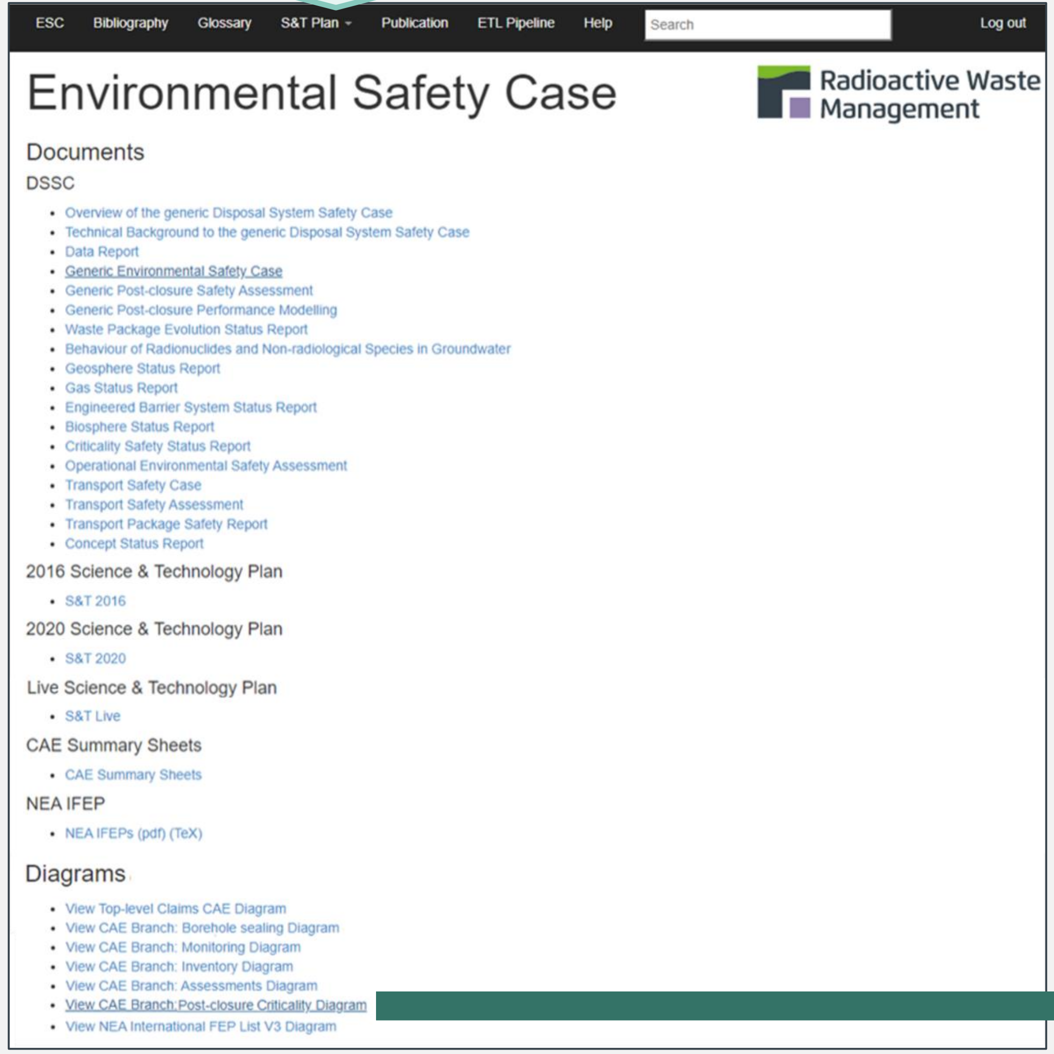


Click Video to Play

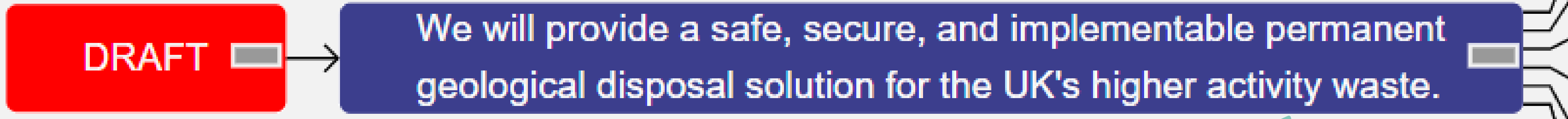
Radioactive Waste Management

ViSI’s safety case diagram collection

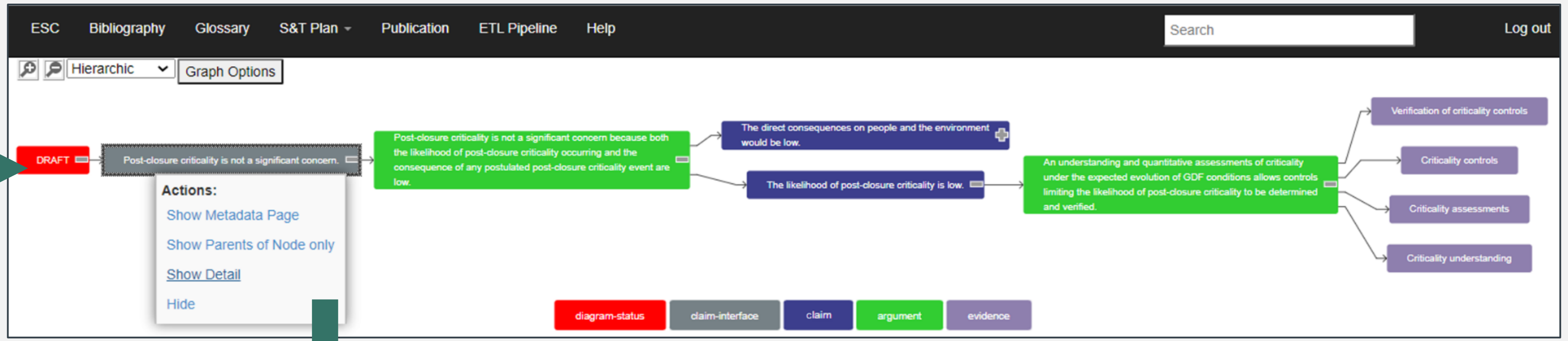
ViSI can render hierarchical diagrams, like branches of the CAE diagram, dynamically.



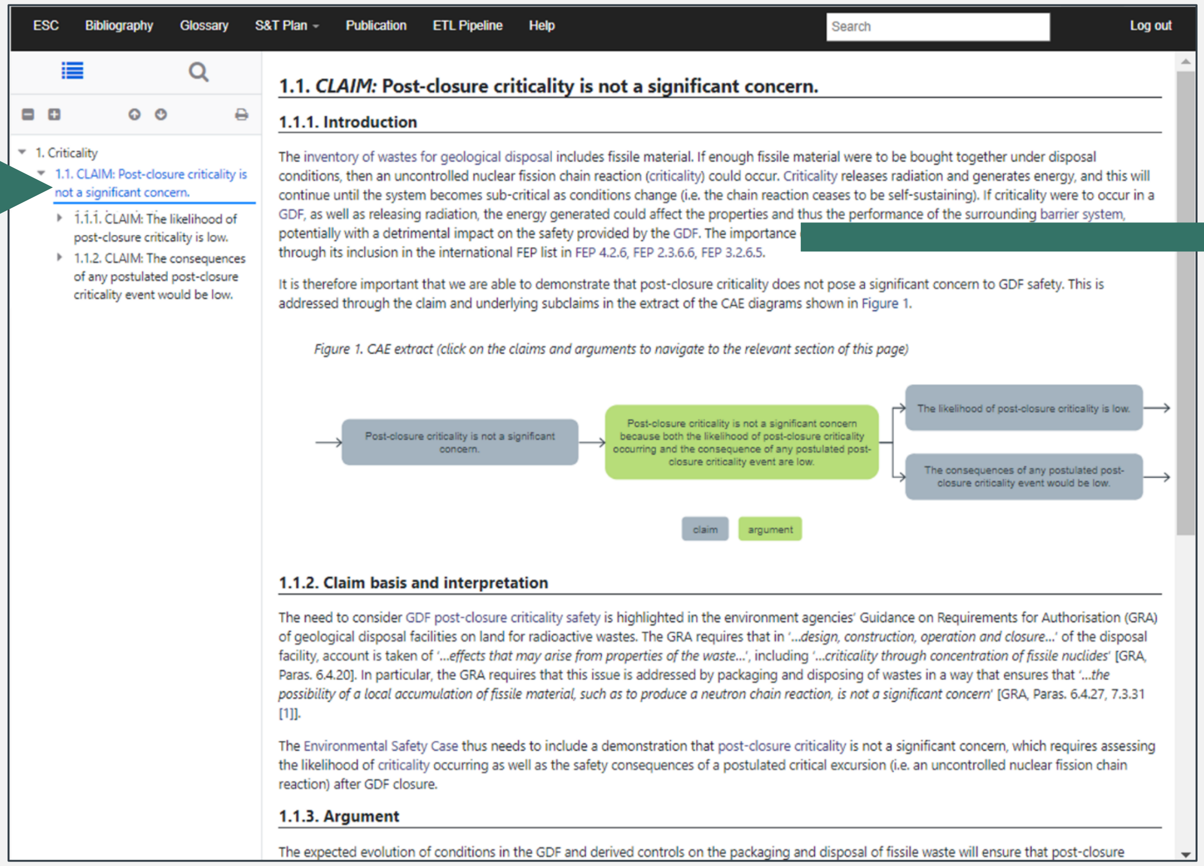
Radioactive Waste Management

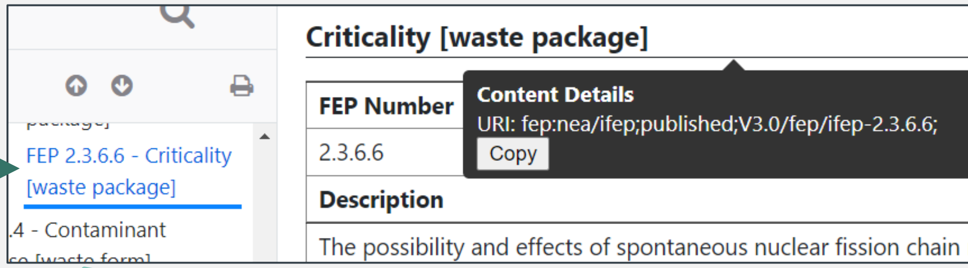


All claims trace back to the root node.



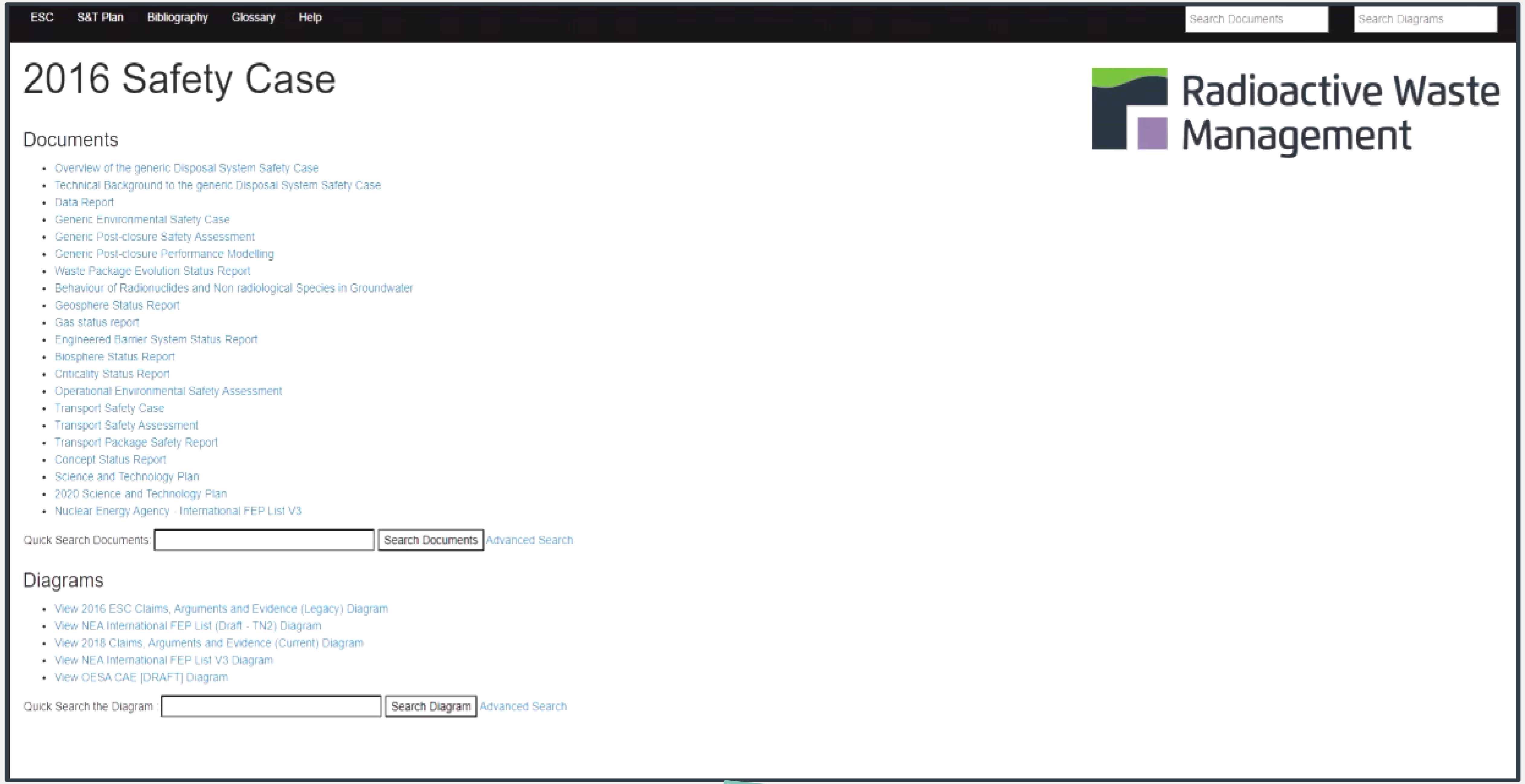
Users can access underpinning information by clicking nodes in the diagram.





References to other sections are rendered as hyperlinks.

ViSI demonstration – FEP diagram



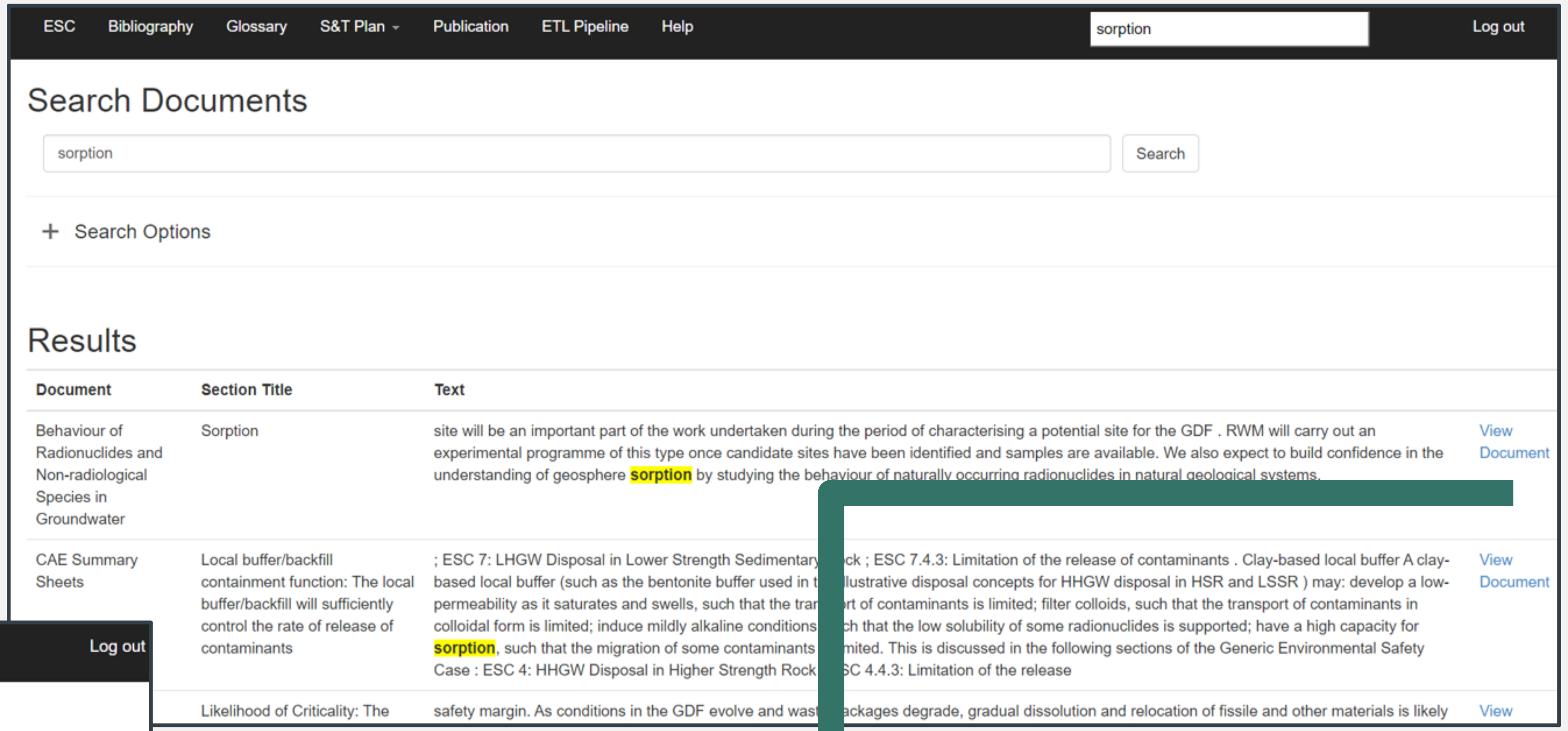
Click Video to Play

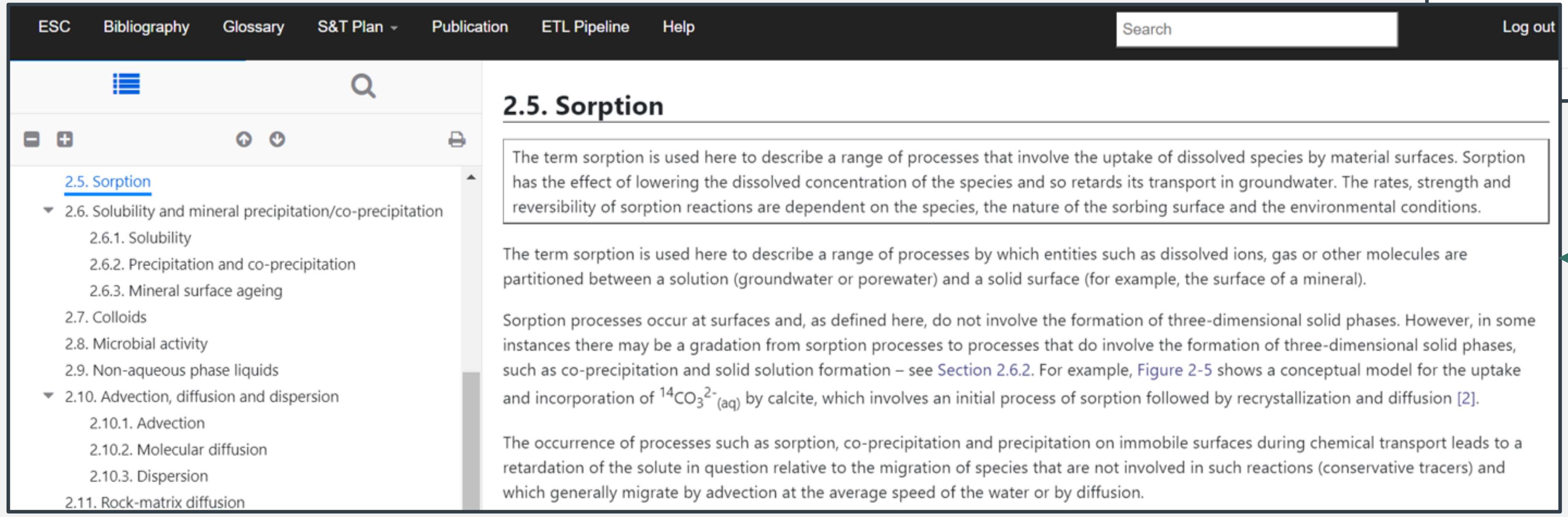
Features, Events and Processes of relevance to the safety case, as compiled in the international FEP list.

Radioactive Waste Management

Using ViSI – Finding information

All content is indexed and searchable. Users can quickly reach the sections of the safety case and underpinning reports they need.

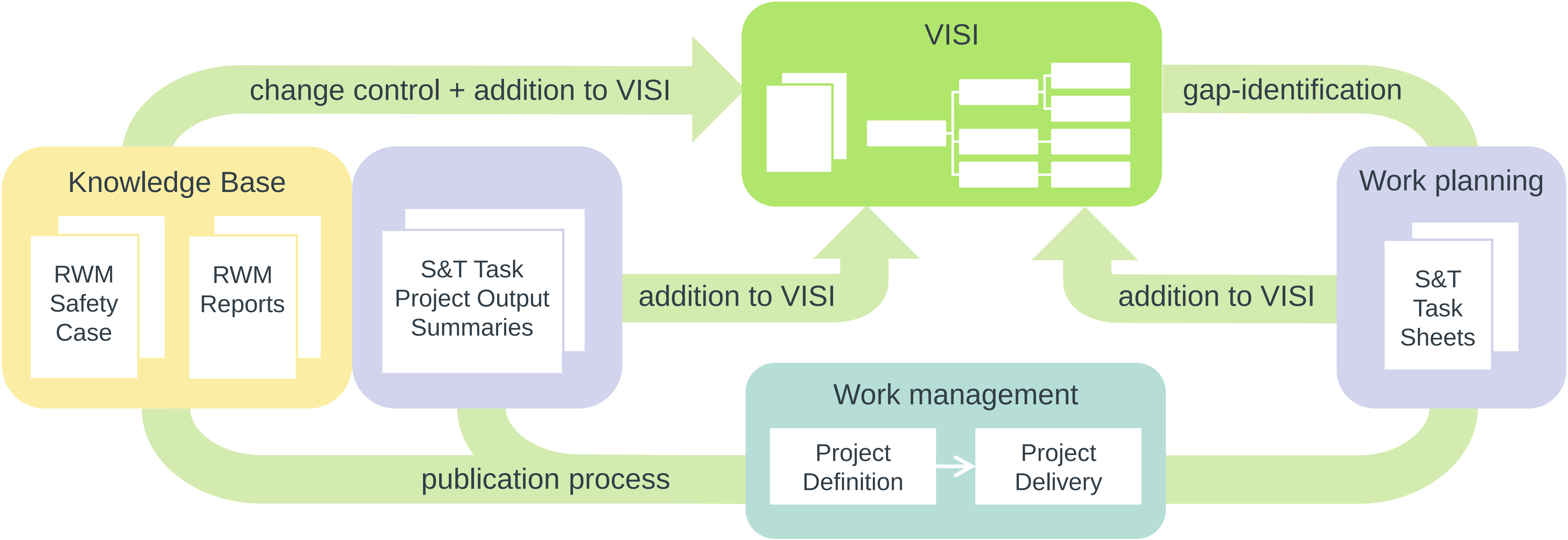




Document search shown above. Search of bibliographic, glossary and figure data also present.

Radioactive Waste Management

Using ViSI as part of RWM’s business cycle



Radioactive Waste Management

Application to the RSO

ViSI can be used:

- as a means of accessing and intuitively navigating through safety case information,
- to explore the links between information,
- to explore the claims, arguments and evidence behind the safety case,
- to identify gaps where additional research would be beneficial, and
- to identify the impact of ongoing or proposed research on the safety case and other areas and support needs driven research.

Ongoing or proposed research can be incorporated into ViSI.

Questions/discussion

1. What would you like to use ViSI for?

2. What would you like to see ViSI able to do?

3. Any other questions, comments or suggestions?

alexander.carter@nda.gov.uk
oliver.hall@nda.gov.uk
lucia.gray@nda.gov.uk