

1. Background and Goal of the present work

The authorization process of a NPP in Spain follows the different stages of these facilities: construction, operation, dismantling and decommissioning. For the dismantling authorization, the licensee is required to send several documents, including the **Site Restoration Plan (PRE)**, which defines the activities to meet the radiological criteria that lead to the release (total or partial, with or without restrictions) of the site, including final status survey, based on the site's final radiological characterization.

2. Documents required for dismantling authorization

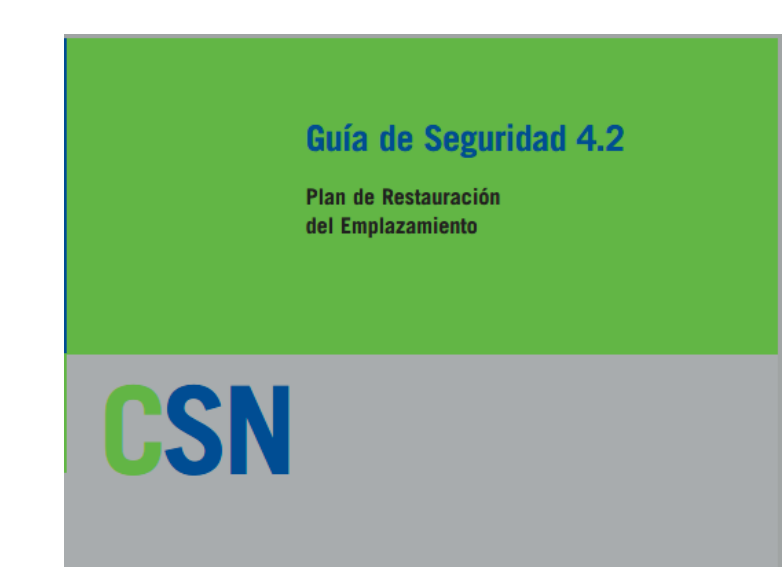
The Spanish Nuclear Energy Law establishes, in its chapter VI, the requirements for obtaining the dismantling authorization. Specifically, article 30 determines the documentation that the licensee must send.

Among them is the **Site Restoration Plan**, which will include the **proposal and justification of the methodology for the site's final radiological characterization**. The aim is demonstrating compliance with the radiological criteria established for the total or partial release, with or without use restrictions of the site. Moreover, this Plan must contain the proposed means so that institutional legal controls are established and maintained to ensure compliance with radiological criteria.

3. Content of the Site Restoration Plan (PRE)

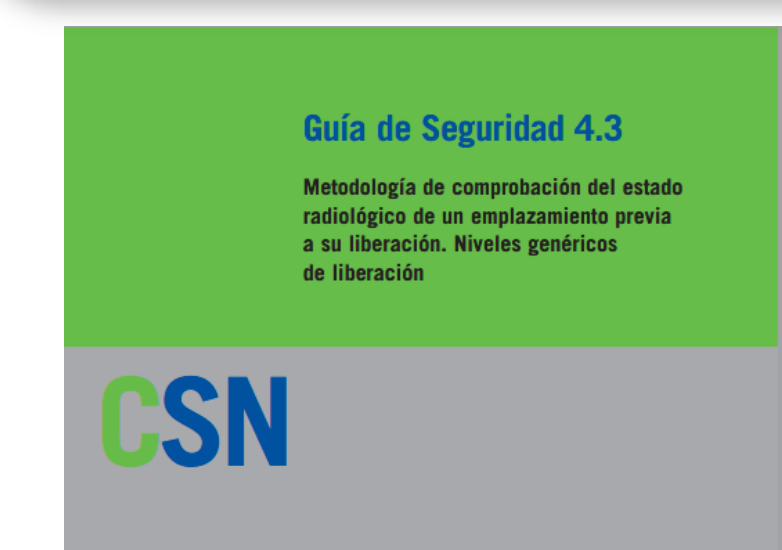
As indicated, **PRE must contain methodology for the final radiological characterization of the site and the proposed means for institutional legal controls after its release.**

The CSN, Spanish nuclear regulatory body, has published two Safety Guides (SG) related to PRE.



SG 4.2 describes the minimum content that must be included in this document and in the final status survey

- Based on international regulations from IAEA, ICRP and US NUREG and RG.
- PRE minimum content:
 - Site description.
 - Release radiological criteria.
 - Restoration process: performances and complementary studies.
 - Final Status Survey. Release methodology.
 - Quality assurance plan.
 - Procedures.



SG 4.3 recommends a methodology to verify the radiological situation for release of the site.

- Based on IS-13 in addition to other international regulations.
- GS 4.3. recommends the use of:
 - NUREG 1575, Rev. 1 - Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM).
 - NUREG 1576 - Multi-Agency Radiological Laboratory Analytical Protocols Manual (MARLAP).
 They are not mandatory. The licensee can use another methodology, but in this case, it must be justified and validated to ensure safety and sustainability throughout the entire process and also after the License Termination.

Situation of Jose Cabrera NPP as of Nov-2022



5. Conclusions

The evaluation process of PRE document has been analysed from the point of view of the final radiological characterization, taking into account the application of the above mentioned Safety Guides, through the presentation of Jose Cabrera NPP case, the first to complete all phases of decommissioning in Spain. PRE is currently being carried out in this site, once final version of the document was approved by CSN in June 2022.

Once the PRE has finished, the License Termination process may start and the licensee shall provide a safety case including a long term impact assessment, an appropriate surveillance programme and any proposed land use restrictions.

The radiological criteria established contribute to meet the development objectives in areas such as human health, food production, water management and environmental protection.

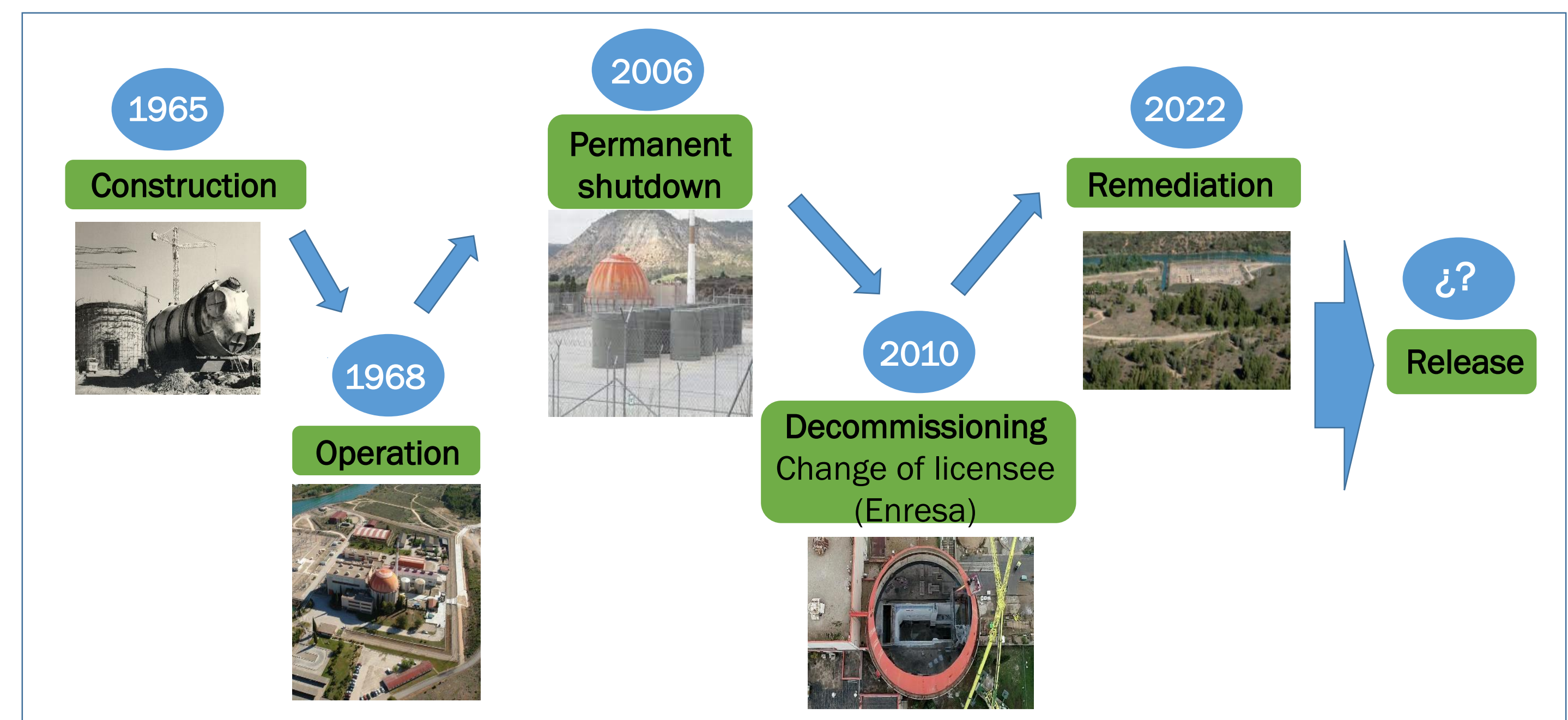
4. Jose Cabrera NPP Case

4.1 Description

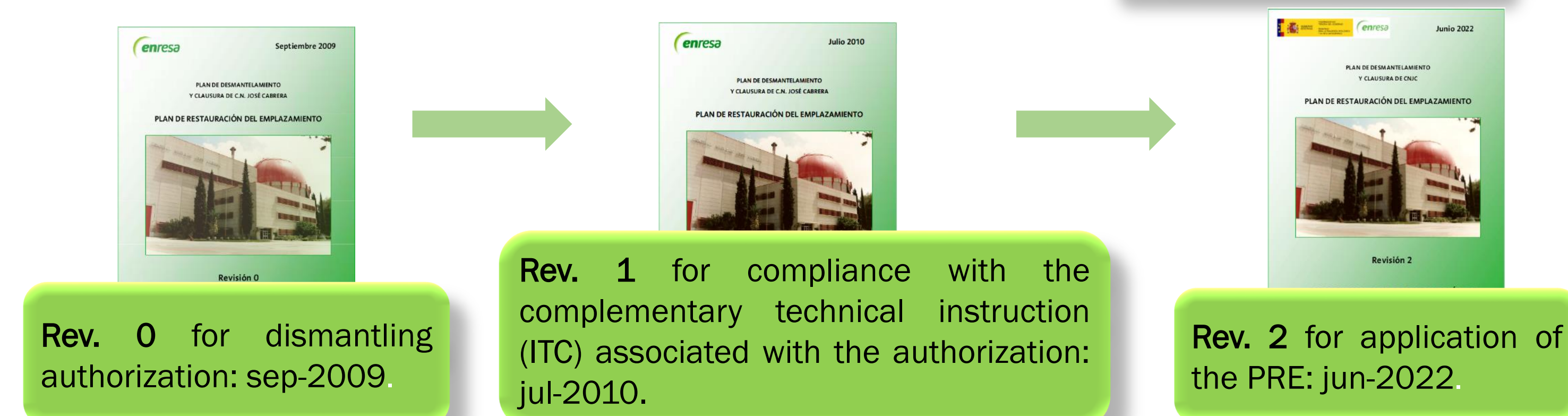


- First NPP in Spain
- PWR reactor
- 160 MWe
- Only one cooling loop

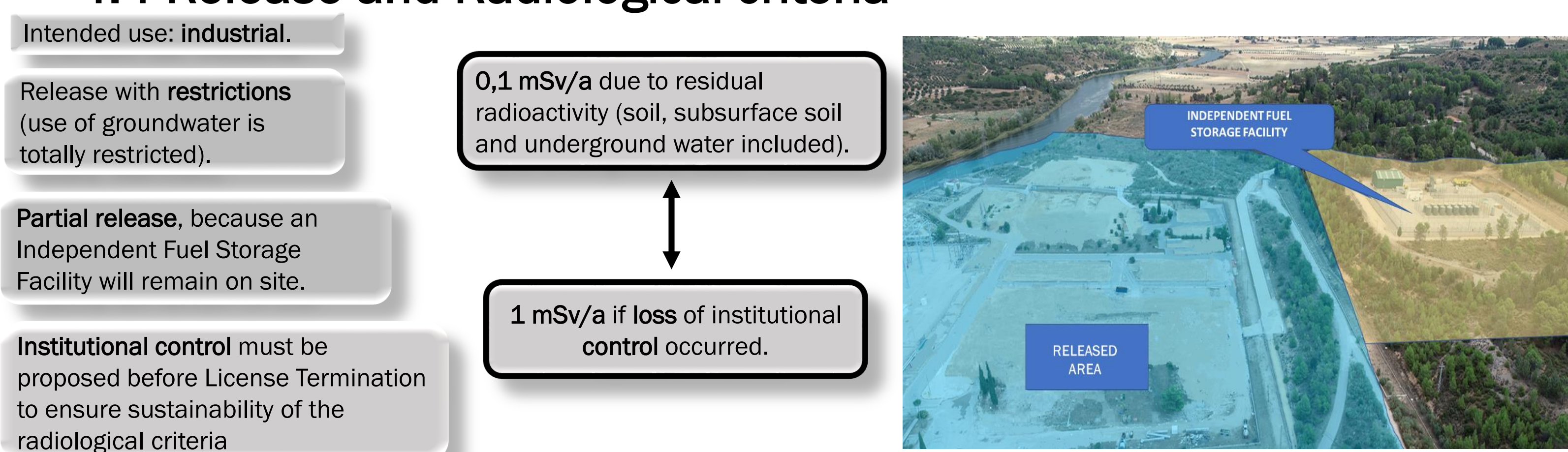
4.2 Chronology



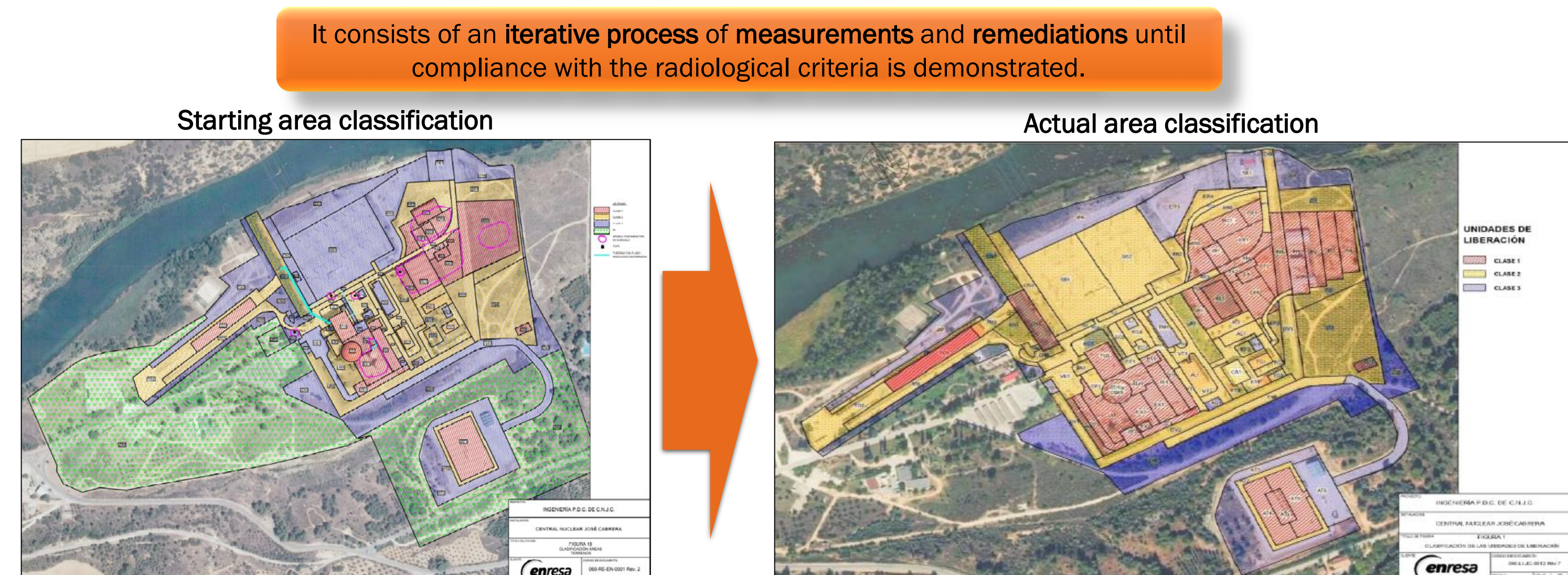
4.3 Site Restoration Plan (PRE) Evolution



4.4 Release and Radiological criteria



4.5 Characterization process



4.6 Supervision process

- Evaluation of the PRE documents
- Periodic inspections to guarantee criteria approved are met.
- Samples taken to be analysed by CSN selected independent laboratory.

