CSN CONSEJO DE SEGURIDAD NUCLEAR
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1 APPROACH TO PERIODIC SAFETY REVIEW (PSR) IN SPAIN

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Outline

- Periodic Safety Review
  - Regulations
  - Objectives
  - Implementation program
  - Scope according CSN guidelines.
  - Deadlines and associated activities.
  - Outcomes.

3 PSR regulations

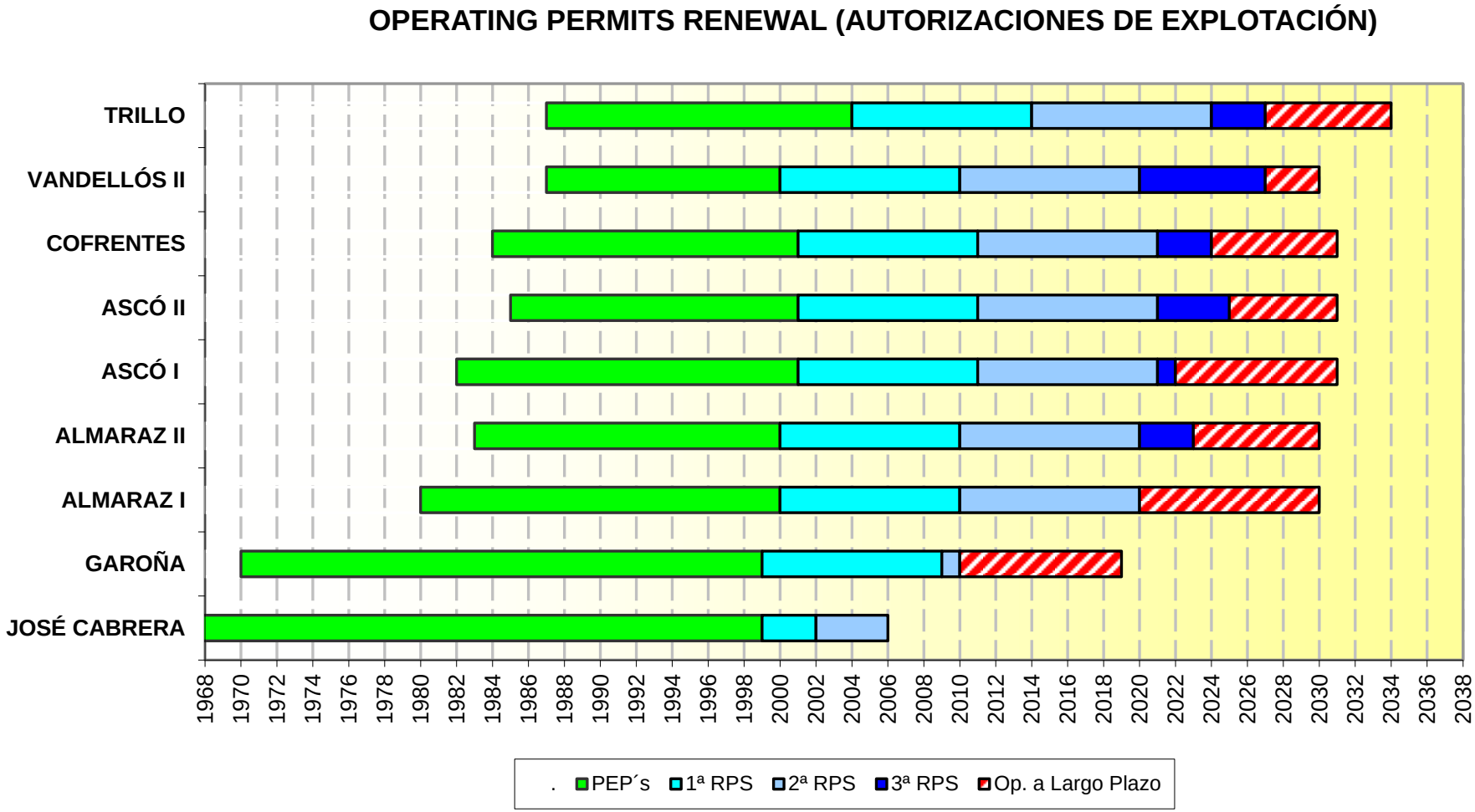
- CSN Safety Instruction IS-26 *Basic nuclear safety requirements for NPP (legally binding).*
  - PSR should confirm compliance with design basis or identify measures to do so.
- CSN Guidance: GS 1.10 "Periodic Safety Reviews at NPP's"
  - Includes the Objectives, Scope and Conditions for the implementation of PSR. IAEA Safety Guide NS-G-2.10 was used as reference (currently SSG-25).
  - It has being applied for PSR since 1995.
  - Reviewed 2008 to include the "standards with application conditioned" (updating the licensing basis).
- Requirement to carry out a PSR included in a specific condition on each Operating Permit since 2000.
- PSR is linked to Operating Permit renewal (10 years).

PSR Objectives

PSR supplements continuous plant oversight to provide a comprehensive and integrated view of safety of the facilities.

- Analyse safety performance over a period long enough to allow for trends identification.
- Identify the potential for cumulative effects affecting safety
- Verify that adequate system for control of plant configuration is in place.
- Analyse the situation related to compliance with international standards and with regulations form the country of origin of the technology.
- Analyse the implementation of technology developments achieved during the review period.
- **Perform a safety assessment of the facility starting from results obtained for every single topic included in PSR scope during the review period.**
- Carry out an Integrated Plan for assessment and management of aging including all *aging management reviews and Time Limited Aging Analyses (In case of application for long term operation).,*
- To assess safety improvement programs on going at the facility and identify new ones to be launched according to PSR results

5 PSR implementation program



6 PSR scope. G. S. -1.10.

- Operating Experience.

  - General: licensee must carry out an assessment of the evolution of his processes and procedures, of their outcomes and of the future plans for safety improvement.
  - Operating experience analysis.

    - plant operations
    - operational radiation protection
    - effluent control
    - radiological environmental surveillance
    - solid waste management

- Equipment performance.

  - Review oriented to identify negative trends in equipment performance and to verify adequacy of measures implemented by licensee.
  - Seismic and environmental qualification , Maintenance rule, In Service Inspection Manual, Surveillance Requirements (TE) and Plant Life Management Plan, Spare parts qualification/dedication, Analysis of failures, Aging and wear and tear processes.
  - Reference to Integrated Plan for Aging Assessment and Management should be made when applying for long term operation permit.

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PSR scope. G. S. -1.10.

- Design modifications.
  - Assessment of all DM implemented, consider joint results on plant design. System oriented.

- Configuration control
  - Review oriented to verify that measures from DB review are adequate and have been fully implemented.

- Managements system
  - Assessment of implementation status of licensee's MS as well as its effectiveness and corrective measures anticipated/applied should be carried out.
  - Licensee's organization, policies, strategic and operative planning should be reviewed.

- Analysis of situation against new regulations (Start point DB licensed).
  - Reference: International standards (mainly IAEA)and, country of origin.
  - Review oriented to identify weak points in the system for licensee to review new regulations. A condition in the OP permit requires such review, yearly basis.

PSR scope. G. S. -1.10
*S*tandards With Conditioned Application Program (SWCAP)

- SWCAP to identify additional regulations (outside licensing bases) able to introduce significant improvements

- Before each PSR the CSN will select and require to licensee new standards to be analysed.

- CSN internal procedure. Selection of standards including discussion with the licensee.
  - Based on new technical knowledge.
  - Successful application without other influences.
  - Design compatibility
  - No similar standards/regulation included in Licensing Basis.
  - No other technically equivalent alternatives implemented

- Nuclear safety benefits: design improvement, reduction on event likelihood, reduction of its consequences, safety management.

- Radiation Protection benefits: dose or waste reduction.

- Can be implemented without excessive burden for licensee.

PSR scope. G. S. -1.10
Programs for safety improvement

- Depending on the specific status of each plant there must be needed improvement programs on:
  - PSR topics.
  - Quality assurance
  - Self assessment and periodic independent external review plans
  - Procedures for normal and emergency operation.
  - Technical specifications updating.

- As a minimum during PSR preparation improvement programs should be in place related to:
  - Maintenance of plant design basis.
  - Adaptation of the plant to *standards of conditioned application* required by CSN.
  - Organization and human factors.
  - Safety culture

- Review oriented to:
  - Verify that on going programs to improve safety fit with specific plant needs
  - Check the situation of the plant against technology developments.
  - Identify new programs to be implemented according to PSR results.

10 PSR deadlines and associated activities.

- General.
  - Review period (10 years) end date should be the end of the year previous to that in which PSR is submitted to authorities.
  - PSR must be submitted one year in advance of permit expiration date.
  - PSA revision should be submitted together with PSR.
  - Standards with conditioned application to be analysed should be identified by CSN one year before PSR submission date.
  - Six months after CSN assessment of PSR a revision of PSR documents must be released to include changes from assessment outcomes.

- Applications for long term operation (LTO)
  - Three years before operating permit expiration licensee should submit the following documents considering LTO:
    - Integrated Plan for Aging Assessment an management.
    - Supplement to FSAR including analysis and studies to justify LTO.
    - TE´s Revision wit changes to assure safe plant operation.
    - Report with Radiological Impact Assessment.
    - Revision of Radioactive Waste Management Plan.

  Revision one year before the operating permit expiration date.

PSR outcomes

- New Standards treatment (standards with conditioned application)
- Examples of improvements (Plant Specific):
  - Fire protection, including application of NFPA-805.
  - Ventilation and Air Filtration systems in controlled zones. New redundant train of Air Filtration and Adsorption Unit in the Spent Fuel Building.
  - Operating experience analysis (requirement for RCA).
  - Severe Accident Management Guidelines, containment protection.
  - Containment isolation valves capability (actuation time < 10 sec, assuming accident conditions, etc.).
  - Containment purging operation, normal conditions.
  - External power supply systems, fault and lightning protections.

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End of presentation

Thank You.