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IAEA • Nuclear Safety of Nuclear Installations
• DS-424 Actions
• IAEA SS Requirements
• How to implement DS-424 Actions
• Action 185: The regulatory body should issue requirements on commissioning

• Action 188: The regulatory body should review and assess the commissioning programme, should verify compliance with requirements and should prepare a programme to oversee the commissioning of systems important to safety in the next Phase

• How to get there…
Establishes the requirements and guidance for commissioning programmes for NPP operators
• The operating organization shall ensure that the commissioning programme includes all the tests necessary to demonstrate that the plant as installed meets the requirements of the safety analysis report and satisfies the design intent, and consequently can be operated in accordance with the operational limits and conditions.

• The operational safety of a plant shall be subject to surveillance by a regulatory body independent of the operating organization. The operating organization shall submit or make available documents and information in accordance with the requirements of the regulatory body.
Safety Standards Requirements

• It is very likely the vendor will provide the initial commissioning programme to the operator based on previous experience

• This initial commissioning programme should be included in the Safety Analysis Report and reviewed by the regulatory body as part of its licensing process

• It is the responsibility of the operating organization to assure that the commissioning programme meets the safety and design requirements
It is the responsibility of the regulatory body to assure that it reviews the commissioning programme and conducts sufficient inspection to satisfy that the requirements were met.

This is done by review/approval of the commissioning programme submittal and by inspection during commissioning.
Regulatory Body Safety Standards

IAEA Safety Standards
for protecting people and the environment

Governmental, Legal and Regulatory Framework for Safety

General Safety Requirements Part 1
No. GSR Part 1

IAEA
International Atomic Energy Agency

Regulatory Inspection of Nuclear Facilities and Enforcement by the Regulatory Body

SAFETY GUIDE
No. GS-G-1.3

INTERNATIONAL
ATOMIC ENERGY AGENCY
VIENNA
Safety Requirements

• Regulatory inspection and enforcement activities shall cover all areas of regulatory responsibility.

• The regulatory body shall establish a planned and systematic inspection programme.
Objective of Inspection

The principal objective of regulatory inspection and enforcement is to provide a high level of assurance that all activities performed by the operator at all stages of the authorization process and all stages during the lifetime of a nuclear facility (siting, design, construction, commissioning, operation and decommissioning or closure) have been executed safely and meet the safety objectives and licence conditions.
The inspection programme should include:
- examination of documented procedures to verify that they accord with the conclusions of the regulatory review and assessment;
- review of the implementation of these procedures;
- direct observation of the performance of certain key pre-operational tests;
- examination of the results of selected tests;
- confirmation of the integrity of any engineered barriers.
The regulatory body should place particular emphasis on inspection by the examination of documentation and by the direct observation of some of the tests performed on:

- SSCs that prevent unsafe conditions or that mitigate the consequences of anticipated operational occurrences and accident conditions

- SSCs whose failure to operate properly will require action from one or more safety related components or systems
- safety systems (such as instrumentation and control systems, shutdown systems and standby systems)
- the integrity of the containment and shielding boundaries (such as hydraulic tests of pressurized structures) as appropriate
- the susceptibility of SSCs to vibration or to other design loads
- secondary containment integrity (such as overpressure and leak rate tests) as appropriate
- emergency power systems as appropriate
- communication capabilities
- ventilation systems
- integrated cold and hot functional tests
Objective (Again) of Inspection

Verification that…”all the tests necessary to demonstrate that the plant as installed meets the requirements of the safety analysis report and satisfies the design intent, and consequently can be operated in accordance with the operational limits and conditions.”
• Safety requirements and guidance are identified in the IAEA safety standards, both for the operator and the regulatory body
• The commissioning programme should demonstrate that the requirements and intent of the design as stated in the safety analysis report are met
• The commissioning programme should be submitted as part of the Safety Analysis Report
• The regulatory body should verify that the demonstration provided by the commissioning programme is satisfactory and sufficient for licensing of the facility
Thank you for your attention!!