

## *Module 10*

# **AUTHORIZATIONS AND APPROVALS**

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### **OBJECTIVES:**

After completing this module you will be able to:

- |            |   |                    |
|------------|---|--------------------|
| <b>CRO</b> | 10.1 Give <u>two</u> generic constraints on persons approving documents or operating & maintenance (O&M) activities.  | ⇔ <i>Page 2</i>    |
|            | 10.2 a) Describe the AECB's mandate, and how it exercises its authority to ensure nuclear safety at NPPs.   | ⇔ <i>Page 2</i>    |
|            | b) Give <u>four</u> examples of changes requiring AECB approval.  | ⇔ <i>Page 3</i>    |
|            | 10.3 Briefly describe the role and limits of authority with respect to nuclear safety of each of the following positions, and give the rationale for the limits of authority: |                    |
|            | a) Operations Manager   | ⇔ <i>Page 3</i>    |
| <b>CRO</b> | b) Shift Supervisor   | ⇔ <i>Pages 4,5</i> |
| <b>CRO</b> | c) Control Room Operator  | ⇔ <i>Page 6</i>    |
|            | 10.4 Briefly explain how the SS ensures that all work impacting nuclear safety is appropriately authorized, and describe the SS's qualifications to do this.                  | ⇔ <i>Page 4</i>    |

## Generic Constraints on Approvers

Each level of supervision and management is vested with a level of authority, as defined in the station OP&P and other documents. Individuals need a clear understanding of what they can approve, versus what they must refer to a higher authority. Any individual approving a document or operating & maintenance (O&M) activity must ensure consistency with:

*Obj. 10.1* ↔

- The limits of authority of the individual's position
- The external boundaries (laws and license), and internal boundaries (OP&P, Safety Report, Radiation Protection Regulations, QA Manual) discussed in Module 9. In practice, this involves an appropriate level of technical review prior to giving the approval.
- Established operating and maintenance practice (unless deviation approved by Operations Manager)
- The system design assumptions and intent (unless deviation approved by Operations Manager).

## Role and Authority of the AECB

The AECB was established by the Federal Government to administer the Atomic Energy Control Act. It is empowered to license nuclear facilities, and to make binding regulations governing the application of atomic energy—eg, the regulations governing the physical security of nuclear facilities, and the transportation and packaging of radioactive materials.

*Obj. 10.2 a)* ↔

The AECB enunciates NPP safety policy and standards via its licensing documents (see Module 7), and requires the Utilities to comply with these. The AECB grants NPP construction and operating licenses based on assurances the Utility provides that the public risk will be within prescribed licensing limits. The Utility's case is based on the safety analysis results published in the Safety Report, and other factors, such as an established station organization, a proper training & qualification program, effective change control, and the use of OP&P. The Operating License is renewed periodically, subject to the continued acceptability of the Utility's track record in nuclear safety.

The AECB monitors for compliance with the Operating License, using the following strategies:

- Reviewing mandatory reports from the Utility on both normal operations and any abnormal operating conditions or events which elevate risk to the workers or public (see Module 18 for reporting requirements)

- Mandating access for AECB staff to the station and to all of its documents and records
- Maintaining a team of Officers at the station to perform such functions as plant tours, documentation reviews, and ongoing communications with station staff
- Performing formal audits of station operations by AECB staff or persons contracted by the AECB

In the event of License violations, or deteriorating trends in the quality of operations, the AECB can issue binding directives to the Utility to improve its performance, and can impose penalties ranging from fines to suspending the Operating License.

To help assure itself that the basis on which it granted the Operating License remains valid throughout the plant life cycle, the AECB approves certain changes to equipment, documentation and staffing, including changes to:

- the OP&P
- radiation emergency response procedures
- station minimum complement
- authorized staff complement (both size and membership)
- certain safety related systems
- fuel design

↔ *Obj. 10.2 b)*

## Role and Authority of the Operations Manager

The Operations Manager is responsible for ensuring safe and productive station operation, in compliance with the Operating License. This is achieved by the following strategies, consistent with the Safety Culture model of Figure 2.1:

↔ *Obj. 10.3 a)*

- Clearly communicating performance expectations of station staff via mission statement, policies and procedures, and the OP&P
- Establishing an effective organization with well defined and understood roles and responsibilities, and sufficient numbers of properly qualified workers, technical support staff, supervisors and managers.
- Establishing effective programs to control functions affecting nuclear safety—eg, configuration management, equipment reliability, plant chemistry, environmental monitoring, quality assurance, technical surveillance, document management, and emergency response.

## NOTES &amp; REFERENCES

\* Such approvals can also be given by other authorized Managers on behalf of the Operations Manager.

- Providing sufficient resources via the business planning process to permit staff to do an excellent job—eg, facilities, tools and equipment, and administrative support staff.
- Personally\*) approving changes to safety related systems, and certain high profile O&M activities that affect nuclear safety
- Monitoring performance against valid performance measures, standards and targets, and taking corrective action to improve performance, as required
- Bringing the best out of station staff by rewarding good performance and sanctioning poor performance
- Ensuring that the station remains competitive by conducting audits, in which station performance is systematically compared with that of the best in the business, and implementing performance enhancement initiatives, as required.

The Operations Manager cannot authorize O&M activities outside the boundaries defined by the station OP&P and Operating License. The Operations Manager's authority is thus limited to ensure that station operation remains within the safe operating envelope, that adequate defense in depth is maintained, that good operating practices are respected, and that the station remains properly accountable to the Regulator. The Operations Manager can negotiate extensions to the operating boundary with the AECB, providing such extensions are justified by supporting safety analysis.

### Role & Authority of the Shift Supervisor (SS)

*Obj. 10.3 b)* ⇔

The SS is the senior Supervisor and senior technical resource on shift, and holds the senior License. The SS monitors and controls shift operations on behalf of the Operations Manager. The SS is responsible for ensuring that shift operations are conducted safely and productively, and in compliance with the Operating License and the OP&P. For example, the SS:

*Obj. 10.4* ⇔

- Ensures that shift personnel are aware of their roles and responsibilities, and of the limits of their authority

*Obj. 10.4* ⇔

- Ensures that work is done only by properly qualified workers, using approved commissioning, operating, and maintenance procedures

*Obj. 10.4* ⇔

- Subject to OP&P constraints, approves deviations from O&M procedures, from the standard equipment configuration (including equipment outages and field installation of engineering changes), and from standard values of process parameters. Ensures Operating Manager's approval is obtained for such deviations, as required.

⇔ *Obj. 10.4*

- Personally prioritizes and approves maintenance on safety related systems, and approves certain key operations, such as raising reactor power
- In accordance with the approved station minimum complement, confirms that the shift complement of qualified staff is adequate to operate and maintain the station safely under normal, abnormal and emergency conditions
- Ensures routine surveillance, testing and maintenance activities are carried out as planned and scheduled
- Stops work in the event that conventional or nuclear safety is threatened
- Declares a radiation emergency when abnormal operating conditions meet the prescribed criteria, and directs the station's emergency response per approved emergency procedures

To fulfill the above-described role, the SS requires sufficient system knowledge to be able to diagnose non-standard operating conditions. In addition, the SS requires a detailed knowledge of Operating Policies and Principles, the rationale behind them, the potential consequences of not following them, the limitations on the SS's authority (which is to work within the constraints of the OP&P) and the limitations on the authority of the SS's subordinates (which is to work within the constraints of approved procedures). The SS requires a good knowledge of shift routine, and of station policies & procedures, including emergency response procedures.

↔ *Obj. 10.4*

The SS's authority is limited for the same reasons as the Operations Manager's authority is limited. It is more limited than the Operations Manager's authority, because the Operations Manager's approval is deemed a necessary additional layer of defense in depth for certain changes and operations. Also, the expertise required to analyze and demonstrate the acceptability of configuration changes and deviations from specified operating limits is not available to the SS on shift. This is particularly true if a detailed accident analysis must be done to demonstrate that a proposed change is safe. For example, the SS cannot approve changes to the physical configuration of specified safety related systems, nor to their set points, unless such changes have been technically assessed as safe, and approved by the Operations Manager.

↔ *Obj. 10.3 b)*

Obj. 10.3 c) ⇔

## Role of the CRO

The CRO operates an assigned generating unit (or assigned systems), following approved procedures. The CRO is responsible for ensuring that unit status is appropriate before authorizing maintenance and testing. The CRO is responsible for recognizing abnormal Unit operating conditions, and informing the SS promptly, as required. Unit monitoring and control are achieved using the following strategies:

- Performing frequent panel checks
- Monitoring alarms, annunciators, test results and field reports
- Personally executing all panel operations, or directly supervising execution thereof
- Controlling field operations, possibly through a field supervisor
- Controlling maintenance on the Unit via the work authorization process
- Maintaining the official Unit log, a legal operating document

The CRO must obtain SS approval to deviate from approved procedures. The CRO's authority is limited for the same reasons that the SS's authority is limited. The CRO's authority is more limited than the SS's, because SS approval is deemed a necessary additional layer of defense for implementing changes, and for certain key O&M activities. Also, in the case of a multi-unit station, the SS assesses the impact of proposed activities on the whole station, whereas the CRO's focus is on his assigned Unit.

## SUMMARY OF THE KEY CONCEPTS

- Four generic constraints on persons approving documents and O&M activities were given.
- The role of the AECB is to ensure that public risk due to reactor operation is within acceptable limits. It achieves this by licensing NPPs, monitoring for compliance with the conditions of the Operating License, and directly approving changes which could affect the basis on which the NPP was licensed. Four strategies by which the AECB monitors NPP operations were given.
- Various strategies by which the Operations Manager ensures that the station operates in compliance with the Operating License were given. The Operations Manager's authority is limited by the OP&P and the station License to ensure that operation remains within the safe operating envelope, that adequate review precedes important decisions, that good operating practices are respected, and that the Utility remains properly accountable to the AECB.

- The role of the SS as the Operations Manager's representative on shift is to ensure that shift operations are conducted safely and productively, within the boundaries defined by the Operating License and the OP&P. The SS has the authority to deviate from approved procedures within the limits of the OP&P, but when such deviations affect specified safety-related systems, the SS may require the Operations Manager's approval. The rationale for the limitations on the SS's authority was given.
- The SS ensures that all work is properly authorized by:
  - ensuring that shift personnel are aware of their roles and responsibilities, and limits of authority
  - ensuring compliance with approved procedures
  - approving plant changes, and deviations from procedures, subject to OP&P constraints
  - approving maintenance on safety related systems, and certain key operations, and where required, obtaining prior approval from the Operations Manager, or from the AECB via the Operations Manager.
- The role of the CRO is to operate an assigned generating unit (or assigned systems), following approved procedures, and to report abnormal situations promptly to the SS. The strategies by which the CRO achieves his mandate, and the rationale for the CRO's limits of authority were given.

## ***ASSIGNMENT***

1. Carefully prepare detailed answers to the Module 10 learning objectives.
2. List and give the rationale for four generic constraints on individuals giving approvals.

NOTES & REFERENCES



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