

## ACRS SUBCOMMITTEE STRUCTURE

| SUBCOMMITTEE                                      | Ballinger | Bier | Bley | Brown | Dimitrijevic | Halnon           | Kirchner         | March-Leuba          | Petti    | Rempe                              | Riccardella | Sunseri |
|---|-----------|------|------|-------|--------------|------------------|------------------|----------------------|----------|------------------------------------|-------------|---------|
| <b>Design-Centered Licensing Subcommittees</b>    | C-APR1400 | M    | M    | M     | M            | C-Holtec SMR 160 | C-NuScale C-OKLO | C-BWRX300 C-ESBWR    | C-KAIROS | C-X-ENERGY C-AP1000                | C-ABWR      | C-APWR  |
| <b>Digital I&amp;C Systems</b>                    |           | M    | M    | C     | M            |                  |                  | M                    |          |                                    |             | M       |
| <b>Future Plants</b>                              | M         | M    | C    | M     | M            | M                | M                | M                    | M        | M                                  |             |         |
| <b>Metallurgy and Reactor Fuels</b>               | C         |      |      |       |              |                  | M                | M                    | M        | M                                  | M           | M       |
| <b>NPUFs</b>                                      | C-SHINE   |      | M    | M     |              |                  | M                | M                    | C-NWMI   | M                                  |             |         |
| <b>Planning &amp; Procedures</b>                  |           |      |      |       |              |                  | M                |                      |          | M                                  |             | C       |
| <b>Plant License Renewal</b>                      | M         |      |      | M     | M            | M                | M                |                      |          |                                    | M           | C       |
| <b>Plant Operations &amp; Fire Protection</b>     | M         |      |      | M     | M            | M                |                  |                      | M        |                                    |             | C       |
| <b>Radiation Protection and Nuclear Materials</b> | C         |      | M    |       |              |                  |                  | M                    | M        |                                    | M           |         |
| <b>Regulatory Policies and Practices</b>          |           | M    | M    |       | M            | M                | M                |                      |          | M                                  | M           | C       |
| <b>Reliability &amp; PRA</b>                      |           | M    | M    | M     | C            |                  |                  |                      | M        | M                                  |             | M       |
| <b>Safety Research Program</b>                    | M         | M    |      | M     | M            | M                | M                | M                    | M        | C                                  | M           | M       |
| <b>Structural and Seismic Analysis</b>            | M         |      | M    |       |              |                  |                  |                      |          |                                    | C           |         |
| <b>Accident Analysis</b>                          | M         |      |      | M     | M            |                  | M                | C-Thermal Hydraulics | M        | C-Severe Accidents C-Power Uprates | M           |         |
| <b>Total (Chair)</b>                              | 10 (4)    | 6    | 8(1) | 9 (1) | 9 (1)        | 6 (1)            | 10 (2)           | 9 (3)                | 9(2)     | 11 (5)                             | 8 (2)       | 9 (5)   |

## ACRS SUBCOMMITTEE STRUCTURE

The ACRS is organized around the following technical subcommittees whose purpose is to obtain, analyze, and organize information for consideration by the full committee. Below is a list of the current subcommittees and a general scope of activities associated with the subcommittees.

### Design-Centered Licensing Subcommittees:

- Review design certification (DC) and standard design approval (SDA) applications with a focus on the safety aspects of the application
- Review design certification renewal applications with a focus on the safety aspects of the application
- Review DC or SDA amendment applications
- Review combined license (COL) applications referencing a certified design, SDA, or a custom design
- Review construction permit (CP) or operating license (OL) applications referencing a certified design, SDA or a custom design
- Review significant topical reports referenced in or related to DC applications or COL application (note that this could occur in the pre-application phase)
- Review Design Acceptance Criteria (DAC) and Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) issues associated with new reactor designs
- Review application guidance and review standards for DC, SDA, OL and COL applications and reviews

### Digital Instrumentation and Control (DI&C) Systems

- Review regulatory requirements and guidance associated with DI&C systems
- Review DI&C systems research activities to support Safety Research Subcommittee activities
- Review information developed by the staff on the inventory and classification (e.g., by function or other characteristics) of the various types of digital hardware and software systems that are being used and are likely to be used in nuclear power plants
- Review staff evaluation of the operating experience with digital systems in the nuclear and other industries to obtain insights regarding potential failures modes
- Review methods for evaluating digital system reliability
- Review NRC staff and industry activities associated with cyber security
- Review DI&C issues associated with new or future plant designs in coordination with the cognizant Subcommittees

# ACRS SUBCOMMITTEE STRUCTURE

## Future Plant Designs

- Review staff and industry activities associated with the licensing modernization project in coordination with cognizant Subcommittees
- Review regulatory requirements and guidance associated with new or advanced reactor designs (10 CFR Part 52)
- Review the resolution of generic combined license issues associated with advanced reactors
- Review application guidance for future advanced reactors
- Review advanced reactor rulemaking activities, as warranted

## Metallurgy and Reactor Fuels

- Review NRC and industry activities associated with the development and introduction of accident tolerant fuel (ATF) in coordination with cognizant Subcommittees
- Review NRC and industry activities associated with aging of reactor plant systems, structures and components (SSCs) due to flow accelerated corrosion, stress corrosion cracking, irradiation embrittlement, general corrosion, and other forms of metal degradation
- Review nondestructive examination techniques used in the detection and sizing of flaws in metallic structures and components such as pressure vessels, piping systems, and steam generator tubes
- Review metallurgical and reactor fuels issues associated with plant life extension, power uprates, and new and future plant designs in coordination with the cognizant Subcommittees
- Review NRC and industry activities related to the introduction of new reactor core materials and components (including fuel and control rod designs) and related design and performance codes
- Review reactor fuel performance and regulatory issues associated with normal and abnormal conditions.
- Review reactor neutronics analytical methods
- Review research activities associated with metallurgy and reactor fuels to support Safety Research Subcommittee activities

## Non-Power Production and Utilization Facilities (NPUFs)

- Review licensing activities related to NPUFs and associated safety evaluation reports (including <sup>99</sup>Mo facilities for medical diagnostics, etc.)
- Licensing and rulemaking activities for NPUFs
- Covers safety-related areas not under the purview of materials, power reactors or new reactors
- Review applications and associated topical reports for non-power reactor facilities (e.g., isotope production facilities)

## ACRS SUBCOMMITTEE STRUCTURE

### Planning and Procedures

- Prioritize topics and coordinate schedules to be considered by the ACRS
- Organize ACRS retreats and implement commitments made at ACRS retreats
- Develop proposed changes to ACRS policies, practices, and bylaws for consideration by the Full Committee
- Implement ACRS policies in planning Full Committee activities, articulating priorities, and scheduling and monitoring activities of the ACRS Subcommittees
- Review Subcommittee structure, tasks, and workload of members and recommend changes, as needed, for full committee consideration
- Coordinate ACRS meetings with international organizations or other government agencies
- Monitor the adequacy of implementation of the memorandum of understanding between the ACRS and the Executive Director for Operations
- Candidate Recruitment - Identify specific technical disciplines needed by the ACRS based on existing membership and the Committee's anticipated workload and qualified candidates

### Plant License Renewal

- Review individual license renewal applications including subsequent license renewals
- Review regulatory requirements and guidance associated with the renewal of operating licenses for nuclear power plants (10 CFR Part 54)
- Review NRC and industry activities associated with subsequent license renewal (i.e., life beyond 60)
- Review revisions to the Generic Aging Lessons Learned (GALL) Report or GALL-SLR Report

### Plant Operations and Fire Protection

- Review significant operating events at nuclear power plants
- Provide a briefing to Full Committee on significant operating experience
- Coordinate periodic meetings with NRC Regional Offices and visits to NRC licensed facilities
- Review enhancements of the NRC's reactor oversight process
- Review risk-informed plant operations and reactor oversight regulatory activities in coordination with the Reliability and PRA Subcommittee
- Review effects of harsh and adverse environment on plant safety systems
- Coordinate the prioritization and resolution of generic safety issues, either directly handling those items or assigning to appropriate Subcommittees
- Review regulatory requirements and guidance for fire protection at nuclear power plants
- Review fire protection research program

## ACRS SUBCOMMITTEE STRUCTURE

### Radiation Protection and Nuclear Materials

- Review regulatory requirements and guidance associated with protection against ionizing radiation (10 CFR Part 20)
- Review regulatory requirements and guidance associated with licensing of source material (10 CFR Part 40)
- Review regulatory requirements and guidance associated with disposal of high-level radioactive wastes in geologic repositories (10 CFR Part 60)
- Review regulatory requirements and guidance associated with land disposal of radioactive waste (10 CFR Part 61)
- Review regulatory requirements and guidance associated with licensing of special nuclear material (10 CFR Part 70)
- Review regulatory requirements and guidance associated with packaging and transportation of radioactive material (10 CFR Part 71)
- Review regulatory requirements and guidance associated with independent storage of spent nuclear fuel and high-level radioactive waste and reactor related greater than Class C waste (10 CFR Part 72)
- Fuel Cycle Facilities: Review regulatory requirements, guidance, and licensing, use of integrated safety assessments and PRAs, and use of operating experience
- Review technical and risk-management issues associated with decommissioning
- Review revisions to the Fuel Cycle Oversight Process
- Review significant operating experience regarding the storage and transportation of radioactive material

### Regulatory Policies and Practices

- Review activities associated with the staff transformation initiatives in coordination with cognizant Subcommittees
- Review proposed regulatory requirements and guidance not assigned to specific ACRS Subcommittees
- Examine the coherence and specific aspects of the NRC regulatory process, as appropriate, and consider changes in emphasis needed in safety-related NRC rules and regulatory practices
- Identify important safety issues needing increased (or less) attention and/or resolution in the NRC regulatory process
- Review NRC staff's reevaluation of the effectiveness of existing regulations which were not assigned to other Subcommittees
- Review activities associated with the hazards of DOE facilities in coordination with cognizant Subcommittees
- Review use of defense-in-depth concept in the regulatory process

## ACRS SUBCOMMITTEE STRUCTURE

- Review individual early site permit applications
- Review technical issues associated with emergency planning
- Review regulatory requirements and guidance associated with safeguards and security issues including those associated with losing large areas of a plant due to explosions or fire (10 CFR 50.54 (hh)(2) and 10 CFR 52.80(d))

### Reliability and Probabilistic Risk Assessment

- Review the staff's risk-informed regulatory activities including transformation efforts
- Review the application of risk insights in the regulatory process
- Review the consistent and extended use of PRAs in the regulatory process and associated NRC programs
- Review regulatory guidance associated with the development and use of probabilistic risk assessment including the performance of sensitivity and uncertainty analyses of PRA results for risk-informed activities
- Review Probabilistic Seismic Hazard Analysis and its use in nuclear plant regulation in coordination with the cognizant Subcommittee
- Review staff's Level 3 PRA for a reference plant
- Review the impact of common-mode failures on the performance of plant safety systems
- Review NRC staff activities associated with consequence analysis codes
- Review the Accident Sequence Precursor Program and the development of Standardized Plant Analysis Risk (SPAR) models
- Review man-machine interactions, including design and arrangement of the control room and operator response
- Review risk and human performance and reliability research activities to support Safety Research Subcommittee activities
- Review control room habitability issues
- Review regulatory requirements and guidance on human factors issues

### Safety Research Program

- Coordinate the preparation of the biennial report to the Commission on the overall NRC Safety Research Program
- Identify new areas of research that are essential for regulatory decision making and research projects that are no longer cost effective and can be eliminated (including the use of new advanced computer methods)
- Review the adequacy of the user office needs for research
- Evaluate whether NRC research places proper emphasis on resolving important regulatory issues

## ACRS SUBCOMMITTEE STRUCTURE

- Consider what research should be done by the NRC and the industry and cooperative research arrangements between NRC and other organizations
- Identify areas in which NRC should perform long-term research
- Review on-going research of special interest that can affect the mission of the agency

### Structural and Seismic Analysis

- Review NRC and industry activities associated with seismic and structural analyses of reactor plant systems, structures, and components (e.g., steam dryer vibration, structural responses to seismic events, and fragility assessments) in coordination with cognizant Subcommittees
- Review NRC and industry activities topics, such as the aging and degradation of concrete, to support Safety Research Subcommittee activities
- Evaluate the design and integrity of spent fuel storage pools as well as the storage and transport of spent fuel
- Review structural and seismic issues associated with new or future plant designs and COLAs in coordination with the cognizant Subcommittees

### Accident Analysis

- Review safety issues associated with severe accident phenomena and thermal-hydraulic including system codes and accident analyses
- Review staff activities associated with NRC system codes, such as TRACE, PARCS , PATHS, and MELCOR Codes
- Review issues associated with the use of industry- or new DOE-developed accident analysis codes
- Review thermal-hydraulic and severe accident issues associated with new or future plant designs in coordination with the cognizant Subcommittees
- Review topical reports for generic accident analysis methodologies
- Review extended power uprate applications as necessary