



Digital Instrumentation and Control

June 4, 2009

Agenda

- Background and Steering Committee accomplishments
- Operating reactor licensing activities
- New reactor licensing activities
- Fuel cycle activities
- Research activities

Background

- NRC Steering Committee established
- Project Plan used
- Industry counterpart groups

Steering Committee Activities

- Technical ISGs have been issued
- ISGs being used
- Extensive outreach with stakeholders
- ISGs are being incorporated into regulatory infrastructure

Ongoing Activities

- Operating reactor licensing process
- New reactor guidance on DAC and ITAAC
- Operational issues
- Research in key areas

Use of ISGs

- ISG-1, Cyber security
- ISG-2, Diversity and defense-in-depth
- ISG-4, Digital communications

NRR Licensing of Digital I&C

- Wolf Creek
 - Main Steam and Feedwater Isolation System
- Oconee
 - Reactor Protection & Engineered Safeguards Protective Systems
- Lessons learned workshop

Operating Reactor Licensing

- ISG will define a predictable and consistent licensing process
- Lessons learned from Oconee and Wolf Creek reviews
- Focuses on
 - Process definition
 - Scope of review
 - Information to be provided

Operational Issues

- Evolution of previously-approved platforms
- Design Changes (10 CFR 50.59)
- Significance Determination Process
- Maintenance Rule (10 CFR 50.65)

Technical Consistency

- Joint development of guidance/ criteria
- Management and staff coordination
- Joint and peer reviews

New Reactor Licensing

- Design certification and COL application reviews
- ISG documents being used
- Design centered review approach to licensing

International Interactions

- Operating experience and lessons learned
- Multinational Design Evaluation Program
- Benefits of collaboration

New Reactor Activities

- Additional guidance on DAC/ITAAC
- International
 - Consensus standards
 - Common regulatory practices

Fuel Cycle Facilities

- ISG-7 addresses fuel cycle facilities
- Scope
 - Cyber Security
 - Independence
 - Communications
 - Software Quality

Research Activities

- Supporting licensing offices
- Collaboration and Coordination
 - Other Federal Agencies
 - International Partners
 - Industry

Research Plan

- Determination of Adequate Diversity
- Fault and Failure Mode Analysis/
Risk Tools
- Advanced Reactor Controls
- Security of Digital Systems

Conclusions

- Licensing actions completed
- Technical guidance issued
- Predictability and effectiveness improved
- Commitment to continued improvement

Acronyms

COL	Combined License
DAC	Design Acceptance Criteria
I&C	Instrumentation and Controls
ISG	Interim Staff Guidance
ITAAC	Inspections, Tests, Analyses, and Acceptance Criteria
NRC	Nuclear Regulatory Commission