



## RIC 2009 NRO New Reactor Design Reviews and Engineering

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### Piping Design Acceptance Criteria

#### Background

- Each certified design except AP600 has included piping Design Acceptance Criteria (DAC) in lieu of completing the piping design
- Approved documentation addressing Piping DAC included:
  - Methodology to complete the piping design documented in the Design Control Document (DCD)
  - Table in the introduction to Tier 1 of the DCD listing the Piping Design Acceptance Criteria (table listing methodology location in DCD)
  - COL Information Item requiring COL Applicant to make the Design Specifications and Design Reports for piping and components available for Audit during the license review
  - ITAAC addressing verification of the as-built reconciliation of the component and piping design

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### LESSONS LEARNED

Through ongoing reviews and response to a request to resolve DAC, NRC has found:

- “Essentially complete” requirement in the regulations with regard to the piping design was not understood
- Regulatory Guide 1.206 guidance to provide a plan and schedule to address DAC was not addressed in the first version of COL applications
- Piping DAC was not adequately defined
  - definition of piping DAC was not directly discussed in existing approved DCDs
  - The status of the piping design was not acknowledged in the DCD
  - A plan or schedule to address the piping design was not addressed in the DCDs

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**DC Applicant Lays Out Plan for Piping Design**

- Piping methodology documented in Chapter 3 of Tier 2 of the DCD
- Two ITAAC and a description of the piping design requirements in Tier 1 of the DCD
  - Review of design
  - Review of as-built reconciliation
- Identify accepted plan for resolution of DAC in DCD Chapter 14.3.3
- COL Item for schedule in DCD Chapter 14.3.3

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**COL Applicant Lays Out Plan for Piping Design**

- Piping design methodology identified in the DCD Tier 2 Chapter 3
- description of piping design requirements and ITAAC to address the as-built reconciliation in Tier 1 of the DCD
- COL Item to allow the COL applicant to address the strategy for provision of the design for review, schedule, and audit opportunity for NRC (ITAAC could be put in place by the COL applicant if the design was to be completed after licensing)

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**Design Certification Without Piping DAC**

- Complete the piping design for risk significant ASME Class 1, 2, and 3 piping packages (as-designed ASME Code Design Reports completed)
- On site review of sample of the completed piping packages by the NRC
- ITAAC to allow review of as-built design reconciliation

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