

*Bellefonte 3&4*

*Lee Nuclear 1&2*

*Summer 2&3*

*Vogtle 3&4*

*Harris 2&3*

*Levy 1&2*



## AP1000 Design-Centered Work Group

### Overview of Bellefonte AP1000 R-COL Application

**November 13, 2007**

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# AP1000 R-COLA Overview Agenda

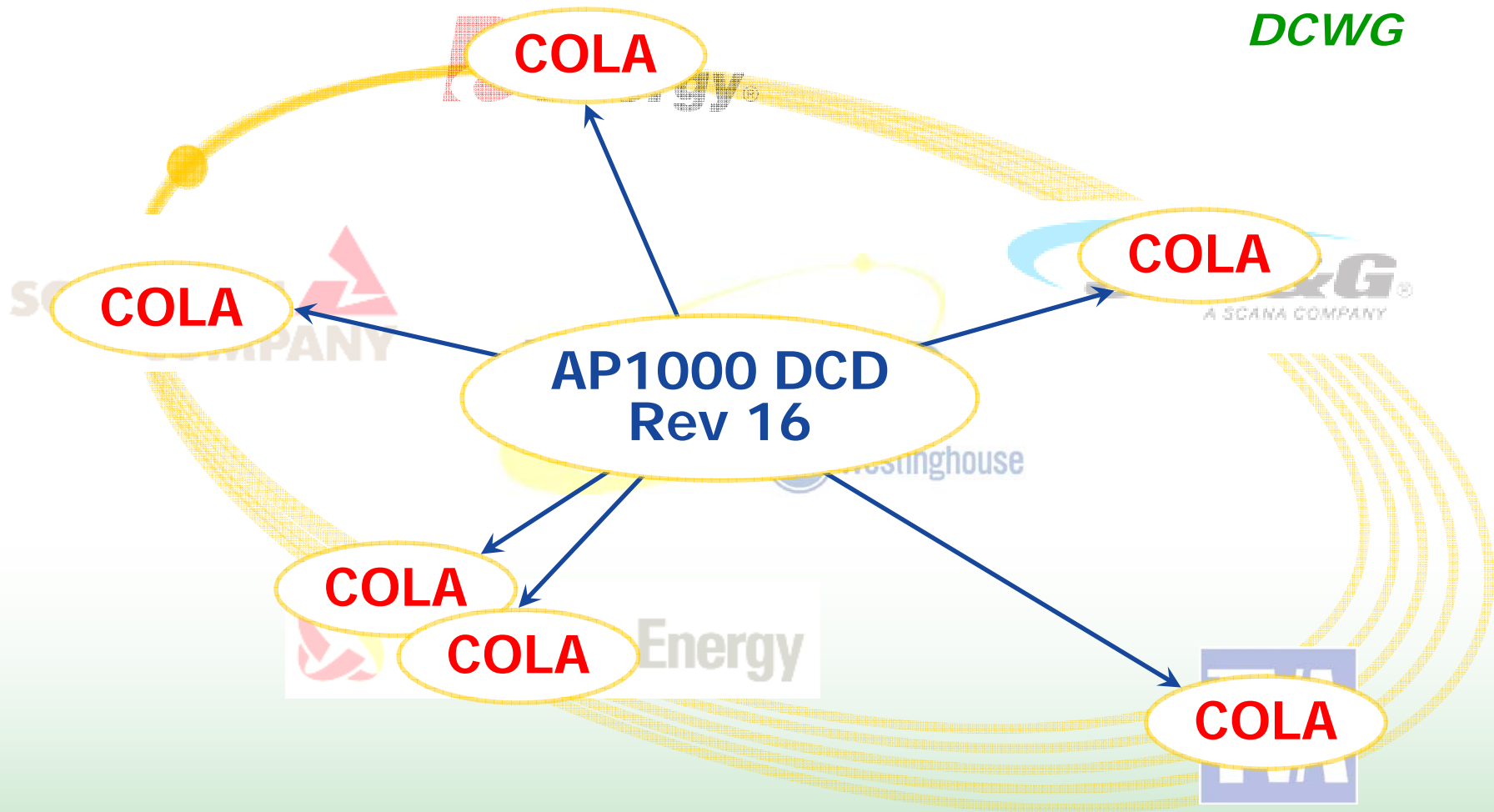
0800-0815	Opening statements & introductions	NRC TVA/DCWG
0815-0915	Relationship of DCD to COLA and R-COLA to S-COLAs TR-DCD matrix/database TR134 matrix/database	DCWG Westinghouse Westinghouse
0915-1000	R-COLA navigation (general) Interactive Q&A	DCWG DCWG/NRC
1000-1015	BREAK	
1015-1045	R-COLA navigation (general) Interactive Q&A	DCWG DCWG/NRC
1045-1115	Overview of Environmental Report, Emergency Plan, and other Parts	DCWG
1115-1200	FSAR Ch 1, 3	DCWG
1200-1245	LUNCH	
1245-1345	FSAR Ch 2	DCWG
1345-1430	FSAR Ch 4, 5, 6, 9, 10	DCWG
1430-1445	BREAK	
1445-1530	FSAR Ch 7, 8, 18, 16, 13, 14	DCWG
1530-1600	FSAR Ch 11, 12, 15, 17, 19	DCWG
1600-1615	Wrap-up/Closing Remarks	NRC

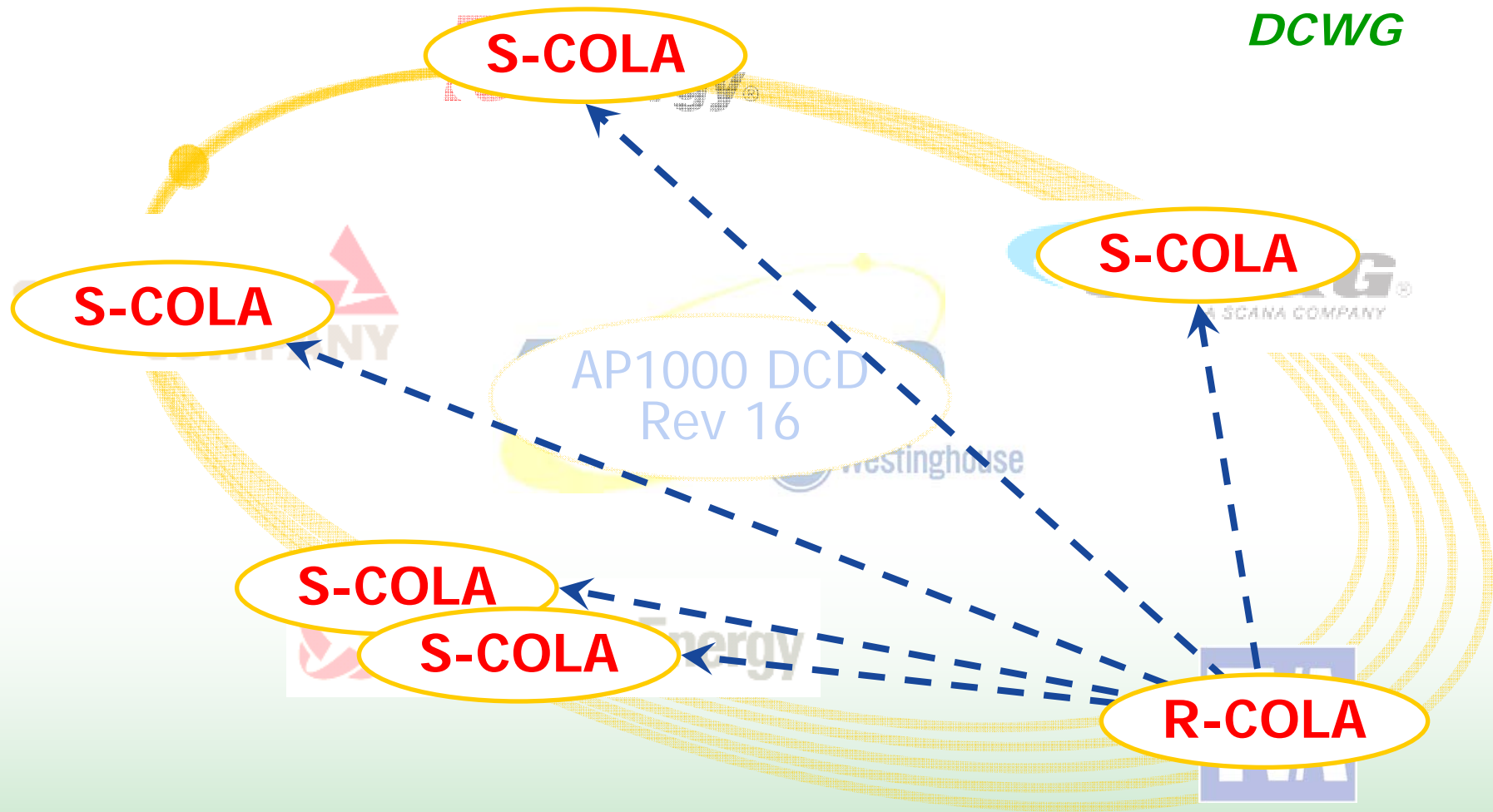


**AP1000**

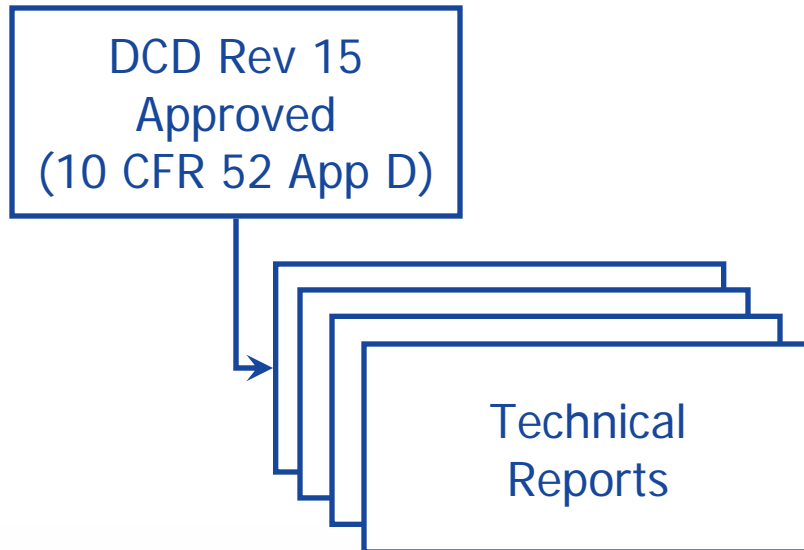


*Bellefonte 3&4    Lee Nuclear 1&2    Summer 2&3    Vogtle 3&4    Harris 2&3    Levy 1&2*

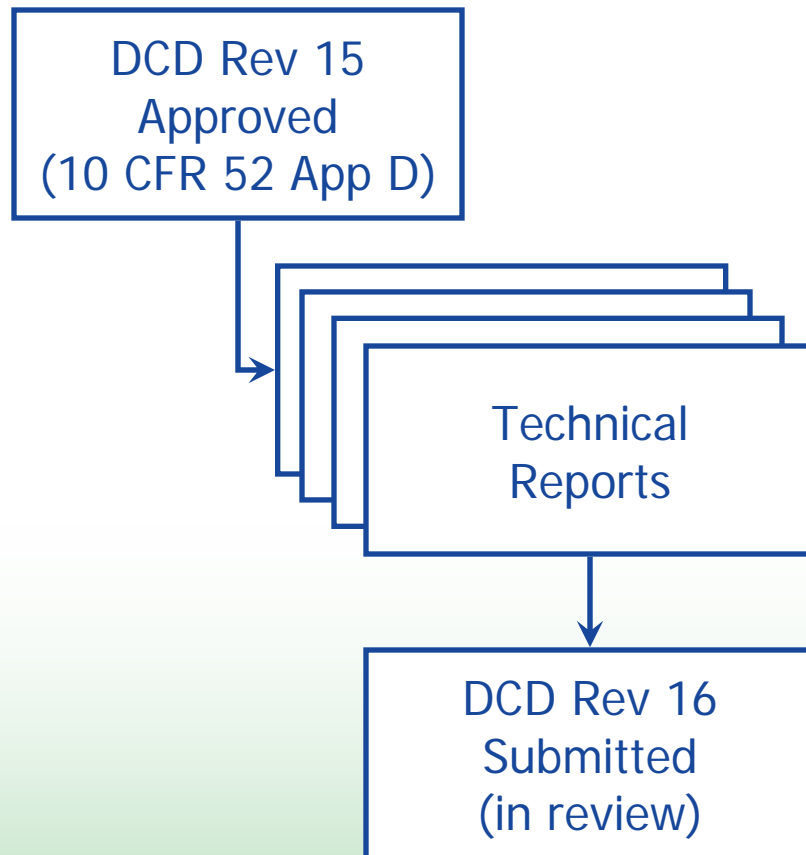




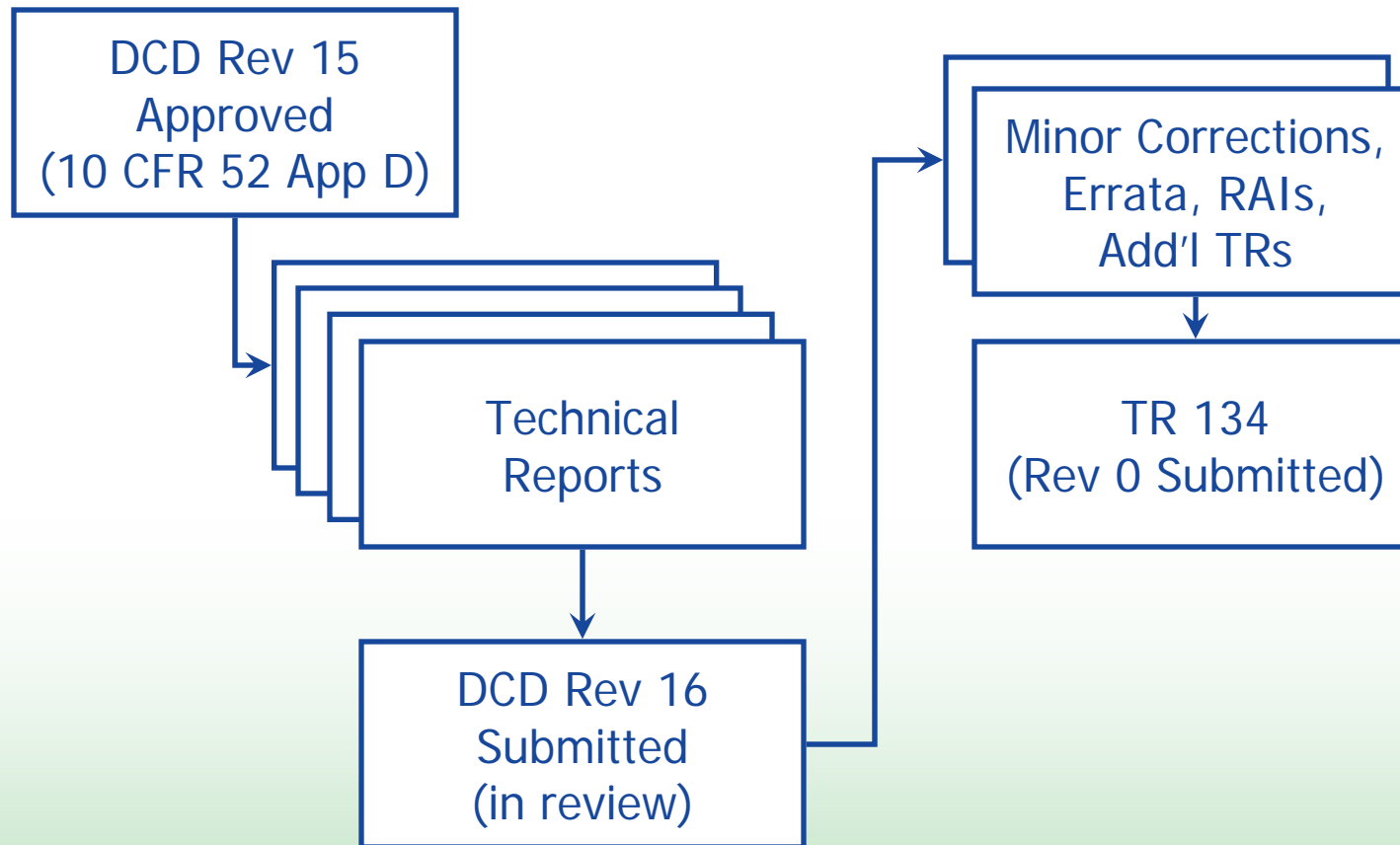
# AP1000 Design Control Document



# AP1000 Design Control Document

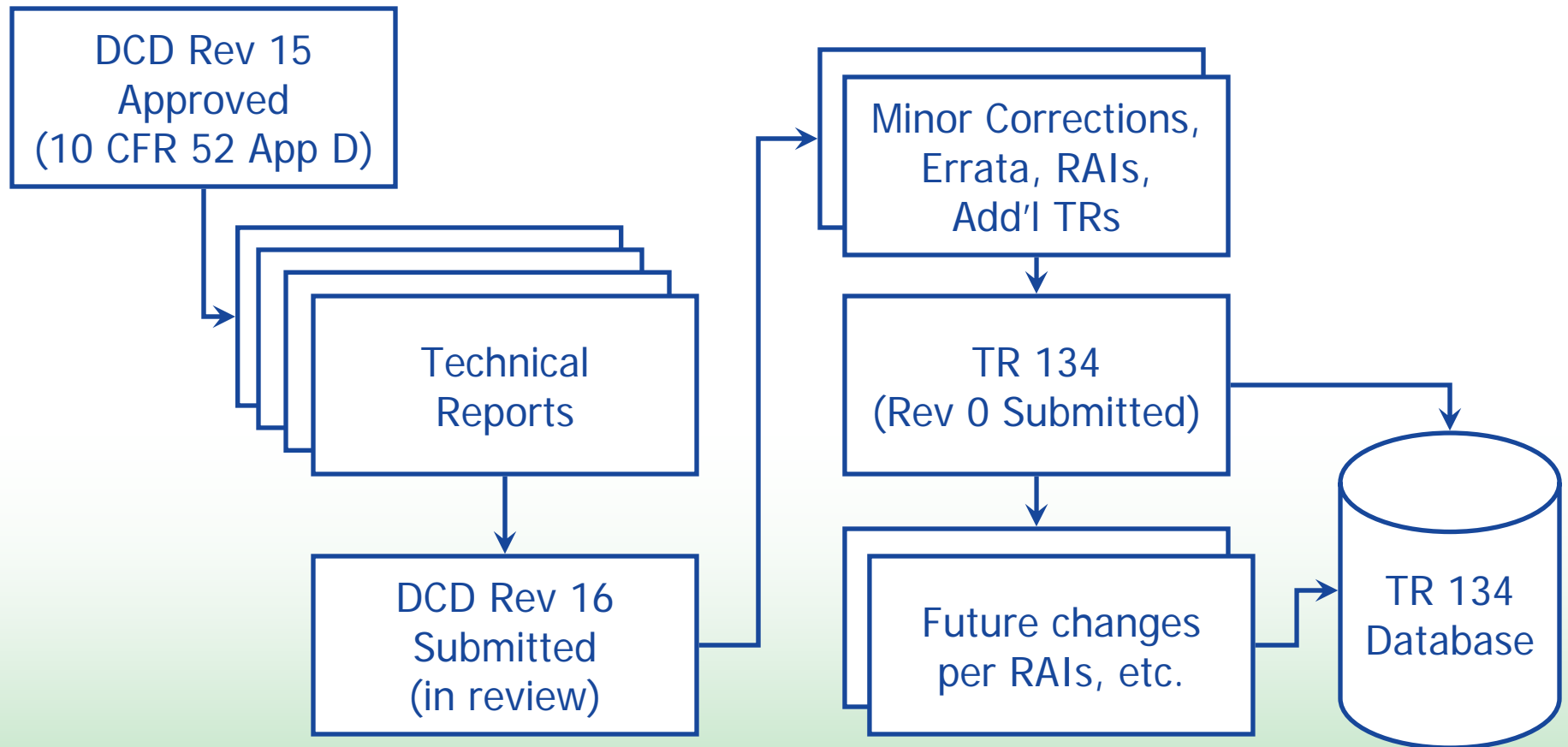


# AP1000 Design Control Document





# AP1000 Design Control Document



# AP1000 R-COLA Overview

## R-COLA Navigation

## R-COLA Navigation

- **File Structure**
- **Bellefonte\_COLA**
  - AP1000\_DCD\_R16\_Public
  - DCD\_Departures
  - Enclosures
  - EP
  - ER
  - FSAR
  - GEN\_FIN
  - ITAAC
  - LWA\_Request
  - Safeguards
  - TS
  - Withheld
- **Links**

## R-COLA Navigation

- **Organization**
  - Text – typically one file per document or chapter
  - Tables follow sections in text files, e.g., 1.6, 1.9, 2.5
  - Figures are separate files
  - Large Appendices are separate files, e.g., FSAR 2AA, 2BB, 2CC
- **Withheld information**
  - Only in Parts 1, 2, and 3
  - Public version [redacted] links to complete information
- **Links**
  - FSAR to IBR DCD section
  - Cross references to DCD and COLA sections
  - Tables and Figures
  - References list

## COL Application

- Cover Letter, Affidavits, etc. (“Part 0”)
- Part 1 – Administrative & Financial Info
- Part 2 – Final Safety Analysis Report
- Part 3 – Environmental Report
- Part 4 – Technical Specifications
- Part 5 – Emergency Plan
- Part 6 – Limited Work Authorization Information
- Part 7 – Departures & Exemption Requests
- Part 8 – Safeguards Information
- Part 9 – Other Withheld Information
- Part 10 – License Conditions & ITAAC
- Part 11 – Enclosures, i.e., QAPD

## R-COLA Navigation

- **Bellefonte\_COLA**
  - AP1000\_DCD\_R16\_Public
  - DCD\_Departures                      Part 7
  - Enclosures                              Part 11
  - EP    Part 5
  - ER    Part 3
  - FSAR    Part 2
  - GEN\_FIN                                    Part 1
  - ITAAC                                        Part 10
  - LWA\_Request                              Part 6
  - Safeguards                                Part 8
  - TS    Part 4
  - Withheld                                    Part 9

# AP1000 R-COLA Overview

## Environmental Report (Part 3) and Other Parts (non-FSAR)



# AP1000 R-COLA Overview

## Part 3 – Environmental Report

- Provides info needed for NRC review per NUREG-1555, Oct 1999
- Also reflects lessons learned from:
  - License Renewal environmental reviews
  - Early Site Permit environmental reviews
  - New and updated environmental regulations
    - NRC pre-application site visits (including T-2 visit)
- Chapter, Section (X.Y) & Subsections (X.Y.Z) per NUREG-1555
- Written to provide data and information needed for NRC review, as identified in NUREG-1555





# AP1000 R-COLA Overview

## Part 3 – Environmental Report (cont'd)

- **Navigation through the BLN Environmental Report**
  - Table of Contents hyperlinked to:
    - Section/Subsections, List of Tables, List of Figures
  - From ER text, hyperlink to:
    - ER Sections/Subsections, Tables & Figures
    - ER Lists of References
    - FSAR Subsections, Tables & Figures
    - DCD Subsections, Tables & Figures
    - Withheld Sensitive Information – Part 9

## AP1000 R-COLA Overview

### Part 9 – Withheld Information

- **Information withheld under 10 CFR 2.390**
- **Header identifies applicable regulation**
  - 2.390(a)(3) – Exempted from Disclosure by Statute
  - 2.390(a)(4) – Proprietary or Business-Sensitive Info
  - 2.390(a)(9) – Geologic & Geophysical Well Info (Maps)
  - 2.390(d) – Security-Related Information
- **Linked to **Part 9** Index**
- **Follow link to one of three files**
  - Part 1 – Proprietary Info
  - Part 2 – SRI and Withheld per Statute
  - Part 3 – Withheld per Statute; Proprietary & Wells

# AP1000 R-COLA Overview

## Part 1 – Administrative & Financial

- Addresses 50.33 information needs:
  - General Information
  - Applicant's Corporate information
  - Financial information
    - Including construction & related fuel cycle estimates and reasonable assurance
    - Conforms to COL/DC-ISG-002
    - Proprietary / Business Sensitive Info (**Part 9**)
  - Decommissioning funding requirements – 10 CFR 50.75
    - Appendix 1A - Decommissioning Cost Estimate Report

## Part 2 – FSAR (later)



# AP1000 R-COLA Overview

## Part 4 – Technical Specifications

- **IBR of DCD GTS (including Bases) – no departures or exemptions**
- **COL item – Fill in brackets – most filled in**
- **Some brackets remain**
  - proposed License Condition in Part 10
- **Section A includes information on GTS brackets**
- **Section B includes a full set of PSTS and Bases**



# AP1000 R-COLA Overview

## Part 5 – Emergency Planning Information

- Site specific licensee Emergency Plan
- Includes Certifications and Cross-references
- State and local plans
- Evacuation Time Estimate
- EP ITAAC in Part 10
- Proposed License Condition for submittal of EPIPs

## Part 6 – Limited Work Authorization (not requested for Bellefonte)

# AP1000 R-COLA Overview

## Part 7 – Departures and Exemptions

- **Exemptions (2)**
  - Fitness for duty program description per expected rule
  - COLA organization and numbering per guidance
- **Departures (3)**
  - STD DEP 1.1-1
    - Administrative departure for organization and numbering for the FSAR sections
  - BLN DEP 9.2-1
    - Service Water System (SWS) blowdown flow path
  - BLN DEP 18.8-1
    - TSC & OSC relocations



## AP1000 R-COLA Overview Non-Public Information

- **Part 8 – Safeguards Information (separate submittal)**
  - Security Plans
  - Not discussed in this public meeting
  
- **Part 9 – Withheld Information**
  - Proprietary, SUNSI (no personal identification information)
  - Some information from Parts 1, 2, and 3



# AP1000 R-COLA Overview

## Part 10 – Proposed License Conditions & ITAAC

- **Proposed License Conditions to:**
  - Incorporate ITAAC into COL
  - Complete Holder items prior to initial fuel load
  - Implement Operational Programs by specific milestones in 13.4
  - Provide Fire Protection Program revision criteria
  - Provide Security Program revision criteria
  - Provide operational readiness schedule
  - Provide Vendor AE Constructor qualifications
  - Provide Startup Program revision criteria
  - Complete bracketed items in Tech Specs
  - Incorporate Environmental Protection Plan
- **Draft Environmental Protection Plan**
- **ITAAC – Security, Plant Specific, Emergency Planning**





# AP1000 R-COLA Overview

## Part 11 – Enclosures

- **Quality Assurance Program Description**
  - Addressed in FSAR Section 17.5
  - NEI-06-14-A
  - Site-specific (bracketed) information completed

# AP1000 R-COLA Overview

## FSAR (Part 2)

# Final Safety Analysis Report

- COL applications based on incorporation by reference of DCD Rev 16 plus TR 134 (DCD Rev 16 impacts)
- “IBR” = Incorporation By Reference
- FSAR Table 1.6-201
  - DCD Rev 16
  - TR 134
  - NEI templates
- **Standardization of COL Applications (FSAR)**



# FSAR Left Margin Annotations (LMAs)

## MARGIN NOTATION DEFINITION AND USE

STD DEP X.Y.Z-#	FSAR information that departs from the generic DCD and is common for parallel applicants. Each Standard Departure is numbered separately at an appropriate level, e.g., STD DEP 9.2-1, or STD DEP 9.2.1-1
NPP DEP X.Y.Z-#	FSAR information that departs from the generic DCD and is plant specific. NPP is replaced with a plant specific identifier. Each Departure item is numbered separately at an appropriate subsection level, e.g., NPP DEP 9.2-2, or NPP DEP 9.2.1-2
STD COL X.Y-#	FSAR information that addresses a DCD Combined License Information item and is common to other COL applicants. Each COL item is numbered as identified in DCD Table 1.8-2 and FSAR Table 1.8-202, e.g., STD COL 4.4-1, or STD COL 19.59.10.5-1
NPP COL X.Y-#	FSAR information that addresses a DCD Combined License Information item and is plant specific. NPP is replaced with a plant specific identifier. Each COL item is numbered as identified in DCD Table 1.8-2 and FSAR Table 1.8-202, e.g., NPP COL 4.4-1, or NPP COL 19.59.10.5-1
NPP CDI or STD CDI	FSAR information that addresses DCD Conceptual Design Information (CDI). Replacement design information is generally plant specific; however, some may be common to other applicants. NPP is replaced with a plant specific identifier. STD is used if it is common. CDI information replacements are not numbered.
STD SUP X.Y-#	FSAR information that supplements the material in the DCD and is common to other COL applicants. Each SUP item is numbered separately at an appropriate subsection level, e.g., STD SUP 1.10-1, or STD SUP 9.5.1-1
NPP SUP X.Y-#	FSAR information that supplements the material in the DCD and is plant specific. NPP is replaced with a plant specific identifier. Each SUP item is numbered separately at an appropriate subsection level, e.g., NPP SUP 3.10-1, or NPP SUP 9.2.5-1
DCD	FSAR information that duplicates material in the DCD. Such information from the DCD is repeated in the FSAR only in instances determined necessary to provide contextual clarity.

*Bellefonte 3&4*

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*Levy 1&2*

# FSAR Chapter 1

## Introduction and General Description

- IBR of DCD, IBR of Part 52 Appendix D, STD DEP 1.1-1
- Discussion of format, e.g., LMAs and numbering of Figures, Tables, & References
- Lists - acronyms, RG usage, SRP conformance, RG conformance
- Complete list of material incorporated by reference
- Summary of Departures as Table 1.8-201, e.g., STD DEP 1.1-1
- STD COL 1.9-1, 2\*, 3\* (RGs, BLs & GLs, and USI/GSIs)
- COL Item tabulation as Table 1.8-202
- Proposed License Condition
  - Vendor/Constructor/AE qualifications
- Section 1.10 on multi-unit site construction considerations

(\* these COL items not numbered in DCD)

## Summary of COL Information Items

- **175 COL Information Items (DCD Rev 16 Table 1.8-2)**
- **45 expected to close via DCD Rev 16**
- **15\* COL Holder Items (18 in Table 1.8-202)**
  - To be addressed post issuance of COL (as built info)
  - Proposed license condition in Part 10
  - 3 Holder Items (per DCD) addressed in COLA
    - 3.11-1, 9.5-6, 10.1-1
- **115\* addressed via COL application**
  - Includes three covered by operational program TRs

\* 2 items are partially addressed via COL application and partially addressed as COL Holder items: 14.4-6, 19.59.10-2

## COL Holder Items (Examples)

### 3.7-3 Seismic Interaction Review

- *The seismic interaction review will be updated by the Combined License holder for as-built information. This review is performed in parallel with the seismic margin evaluation. The review is based on as-procured data, as well as the as-constructed condition. The as-built seismic interaction review is not provided with the COL application, but is completed prior to fuel load.*

### 5.3-4 Reactor Vessel Materials Verification

- *The Combined License holder will complete prior to fuel load verification of plant-specific belt line material properties consistent with the requirements in subsection 5.3.3.1 and Tables 5.3-1 and 5.3-3. The verification will include a pressurized thermal shock evaluation based on as procured reactor vessel material data and the projected neutron fluencies for the plant design objective of 60 years. This evaluation report will be submitted for NRC staff review.*

## FSAR Chapter 3 Design of SSCs

- Mostly IBR of DCD
- Dual unit information (DCD is for single unit)
- Inservice testing program description
  - Snubbers
  - Valves (no pumps)
- SUP material and COL items



## FSAR Chapter 2 Site Characteristics

- Mostly site specific material, STD DEP 1.1-1
- Comparison of BLN Site Characteristics to DCD Site Parameters
  - Combined listing of DCD Tier 1 Table 5.0-1 and Tier 2 Table 2-1
- SUP material and COL items



## FSAR Chapter 4 Reactor

- Mostly IBR of DCD
- COL items



# FSAR Chapter 5 Reactor Coolant System

- Mostly IBR of DCD
- Inservice inspection program (Class 1)
- SUP material and COL items

# FSAR Chapter 6

## Engineered Safety Features

- **Mostly IBR of DCD**
- **Containment leak rate testing program**
  - (per approved NuStart TR)
- **Inservice inspection program (Class 2 & 3)**
- **SUP material and COL items**

## FSAR Chapter 9 Auxiliary Systems

- Mostly IBR of DCD; STD DEP 1.1-1
- BLN DEP 9.2-1 – service water cooling tower blowdown
- Full-text incorporation in 9.2.8 – Turbine building closed cooling water (CDI replacement)
- SUP material and COL items



# FSAR Chapter 10

## Steam and Power Conversion

- Mostly IBR of DCD
- Full-text incorporation for 10.4.5 – Circulating water (CDI replacement)
- Inservice inspection program
- SUP material and COL items



# FSAR Chapter 7 Instrumentation and Controls

- All IBR of DCD



# FSAR Chapter 8 Power Systems

- Mostly IBR of DCD
- Conceptual design information (CDI) replacement
- Switchyard and grid information
- SUP material and COL items





# FSAR Chapter 18

## Human Factors Engineering

- Mostly IBR of DCD
- BLN DEP 18.8-1 – Moved TSC & OSC
- COL items



# FSAR Chapter 16 Technical Specifications

- Mostly IBR of DCD
- 16.1 – Plant specific TS in Part 4
- COL items

# FSAR Chapter 13

## Conduct of Operations

- **IBR of DCD; STD DEP 1.1-1**
- **13.1 - Organization – generic terms**
- **13.2 – Training**
  - IBR of NEI 06-13-A re Training Program
- **EP (13.3) and SGI (13.6) are separate documents**
  - 13.6 refers to NEI 03-12 Appendix F for construction
- **13.4 – Operational Programs**
  - Proposed License Conditions in Part 10 re Implementation and Readiness
- **13.5 – Procedures**
- **13.7 – Fitness for duty (not in DCD)**
  - References NEI 06-06
- **SUP material and COL items**



# FSAR Chapter 14 Initial Test Program

- Mostly IBR of DCD
- ITAAC criteria
- ITAAC screening
- SUP material and COL items



# FSAR Chapter 11

## Radioactive Waste Management

- **Mostly IBR of DCD**
- **Adopts NEI 07-11**
  - Cost-benefit analysis template
- **Adopts NEI 07-10**
  - Process control program description
- **Adopts NEI 07-09**
  - Offsite dose calculation manual description
- **Radiation and effluent monitoring program**
- **SUP material and COL items**



# FSAR Chapter 12

## Radiation Protection

- **Mostly IBR of DCD**
- **12.1 – ALARA**
  - IBR of NEI 07-08 re ALARA
- **12.4 – Dose to construction workers**
- **12.5 - Radiation protection program (Appendix 12AA)**
  - IBR of NEI 07-03 re Radiation Protection Program
- **SUP material and COL items**



# FSAR Chapter 15 Accident Analysis

- Mostly IBR of DCD
- Tank failure analysis moved to Chapter 2
- SUP material and COL items



# FSAR Chapter 17 Quality Assurance

- **Mostly IBR of DCD; STD DEP 1.1-1**
- **Quality assurance program description (QAPD) in Part 11**
  - QAPD based on approved NEI 06-14-A
  - IBR of NEI 07-02 re Maintenance Rule Program
- **Two new sections not in DCD**
  - 17.5 (QA for new license applicants)
  - 17.6 (Maintenance rule)
- **SUP material and COL items**





# FSAR Chapter 19

## Probabilistic Risk Assessment

- Mostly IBR of DCD
- SUP material and COL items



**AP1000**



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