Duke Energy Lee Combined License Schedule Discussion

March 19, 2008

Joelle Starefos, Project Manager (Safety)

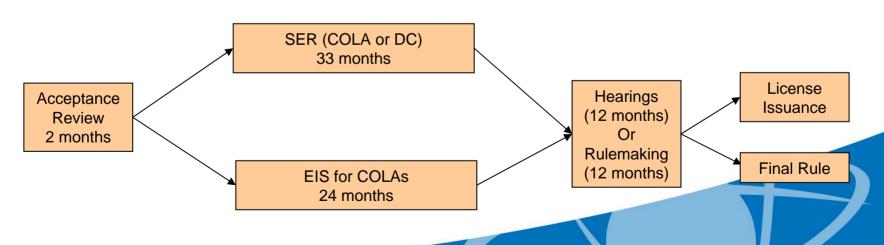
Linda M. Tello, Project Manager (Environmental)



Licensing Review Phases

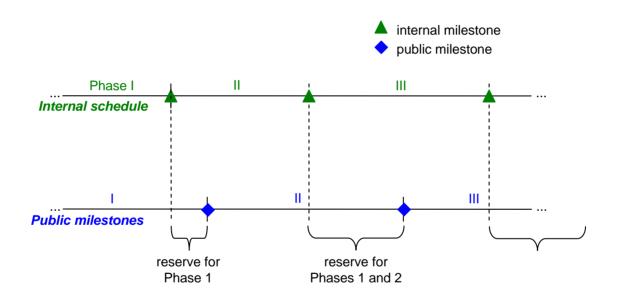


- NRC's review of COLs and DCs is organized in the same way
 - Acceptance Review (2 months)
 - •6-Phase SER (33 months includes Management Reserve)
 - •4-Phase EIS (24 months includes Management Reserve)
 - Not covered in detail during this presentation
 - •Hearings (COLs) (12 months)
 - •Rulemaking (DCs) (Goal is 12 months)



Management Reserve





Safety Review 6-Phase SER



- PSER & RAIs
- 2. SER with Open Items
- 3. ACRS Meetings (SER with OIs)
- 4. Advanced FSER, no open items
- 5. ACRS Meetings
- 6. FSER

	Duration in		Υ	′1			١	/2	
	Working Days	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
☐ Safety Review	479 days	_				:			
Phase 1 - PSER and RAIs	93 days	_	_						
Phase 2 - SER with Ols	225 days	_				▼			
Phase 3 - ACRS Review of SER with OI	64 days					_	-		
Phase 4 - Draft FSER with No OI	146 days							-	
Phase 5 - ACRS Review of Draft FSER with No OI	63 days							-	—
Phase 6 - FSER with No OI	57 days							ļ ,	
Safety Review Complete	0 days								•

(Note: Durations in this figure differ from nominal durations.)

SER Phase 1 - PSER and RAIs



- Begins with start of review
- Ends when for a chapter when all RAIs issued for the chapter
- Includes (for example):
 - Reading COLA/DC
 - Preparing PSER and RAIs
 - Internal peer reviews and concurrence
 - Interactions with applicant
 - •Site audit

Phase 2 - SER with Open Items



- Begins with review of RAI responses
- Ends with submission of completion SER w/OI
 - •Includes:
 - Reading responses
 - Preparing SER w/OI input
 - •Internal peer reviews and concurrence
 - Interactions with applicant
 - •Can be extended by late RAI responses
 - •Staff will evaluate timing of the first ACRS interaction based on the number and complexity of Open Items

Phase 3 - ACRS Review of SER



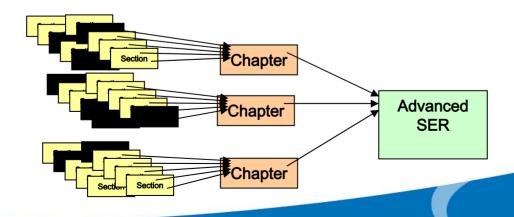
- Begins with Issuance of SER w/OI
- Ends with staff response letter to ACRS

	Duration in			1	Nonth 1	3			Monti	h 14			Мо	onth 15		\equiv
	Working Days	W52	W53	W54	W55	W56	W57	W58	W59	W60	W61	W62	W63	W64	W65	W
Phase 2 Complete - SER with Ols Isssued	0 days	•														
☐ Phase 3 - ACRS Review of SER with OI	63 days	₩													_	1
P3 Provide SER w/ Ols to ACRS	0 days	♦	I	<u> </u>	<u> </u>	<u> </u>										
P3 Prepare for ACRS Subcommittee and Committee Meetings	20 days						Ь.									
P3 ACRS Subcommittee Meeting	1 day						Ъ									
Phase 3 - ACRS Subcommittee Meeting on SER with Ols Complete	0 days						♦									
P3 ACRS Full Committee Meeting	1 day						I _I									
Phase 3 - ACRS Full Committee Meeting on SER with Ols Complete	0 days						♦									
Phase 3 - ACRS Interim Letter to Commission Received on SER with Ols	0 days										*					
☐ P3 Respond to ACRS Letter	20 days										•				-	į
P3 Develop Response to ACRS Letter	10 days															
☐ P3 Obtain Concurrence on Response to ACRS Letter	9 days													<u> </u>	_	
P3 PM, Tech Edit, LA, Branch Chiefs, OGC, Division Director, Office Director, EDO	9 days															
P3 Issue ACRS Response Letter	1 day														Ĭ	i
Phase 3 - NRC Response Letter to ACRS Issued	0 days														•	I
Phase 3 Complete	0 days														•	

Phase 4 - Advanced SER



- Advanced SER contains no open items
- Resolves identified open items plus issues resulting from ACRS review
- Includes four general sub-phases (similar to SER w/OI)
 - Awaiting input from applicant
 - Resolution of OIs and issues by Technical Reviewer
 - Chapter completion process
 - Document completion process
- Work excludes SER chapters and sections without OIs and issues



Work: SER Phase 4 - Draft FSER



- Begins with receipt of first input from applicant
- Ends with completion of advanced SER
 - •Includes:
 - Reading and evaluating applicant input
 - Interactions with applicant
 - Preparing Draft FSER section
 - •Internal peer reviews and concurrence
 - •Other activities . . .
- Can be extended by late applicant responses

Phase 5 – ACRS Review of Advanced SER



Activities ARE THE SAME as ACRS Review of SER w/OI

Phase 6 - Final SER



- FSER
- Contains no open items
- Differs from advanced SER only in those areas addressed in ACRS review
- We won't know what these areas are until after ACRS meeting
- Work in these areas can begin as soon as issues are known
- Activities occur in 2 sub-phases:
 - ACRS Issue Resolution
 - Document Completion

Safety & Environmental Review Schedule - *Background*



- Schedule based on combined license (COL) schedule template
- Template schedule for a COL safety review is 33 months (includes managed reserve)
- Template schedule for a COL environmental review is 24 months (includes managed reserve)
- Schedule for hearing determined by Commission and Atomic Safety and Licensing Board
- Safety review drives schedule, not environmental review

Resource Allocation



- Schedule milestones are expected to change based on information that is provided today related to the scheduling issues addressed by the meeting agenda
- Schedule reflects reduced effort for portions of schedule associated with work that is significantly standard or incorporated by reference
- Chapters with large resource allocations:
 - •Chapter 2 Site Characteristics
 - •Chapter 3 Design of Structures, Components, Equipment, and Systems
 - •Chapter 13 Conduct of Operations

Safety Review Milestones(Without Lee Schedule Issues Addressed)



	Review Phases DRAFT	Completion Date (Target)
P1	Preliminary safety evaluation report (PSER) and requests for additional information (RAIs)	September 2008
P2	Issue SER with open items (OIs)	June 2009
P3	ACRS review of SER with OIs completed	September 2009
P4	Issue Advanced SER with no OIs	April 2010
P5	ACRS review of Advanced SER with no OIs completed	August 2010
P6	Issue Final SER with no OIs	October 2010
Hear	ing completed and decision on COL	May 2011

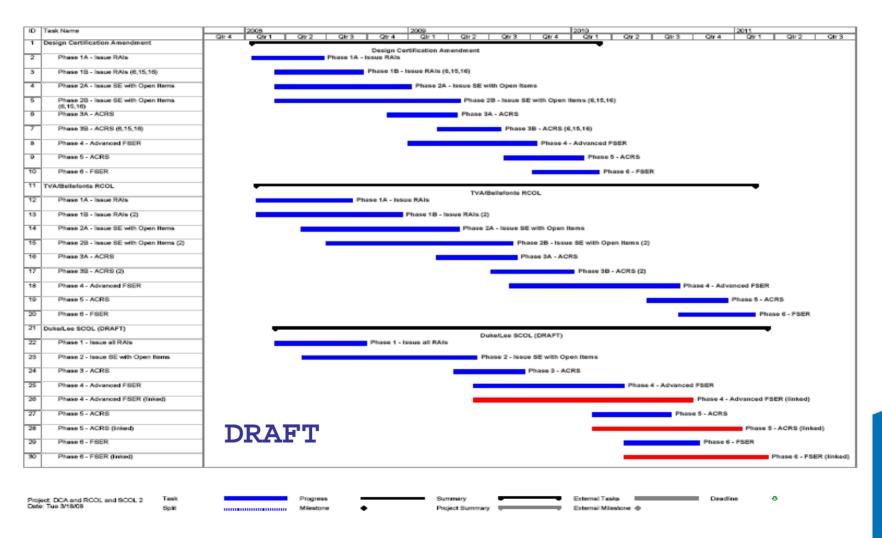
Safety Schedule Challenges

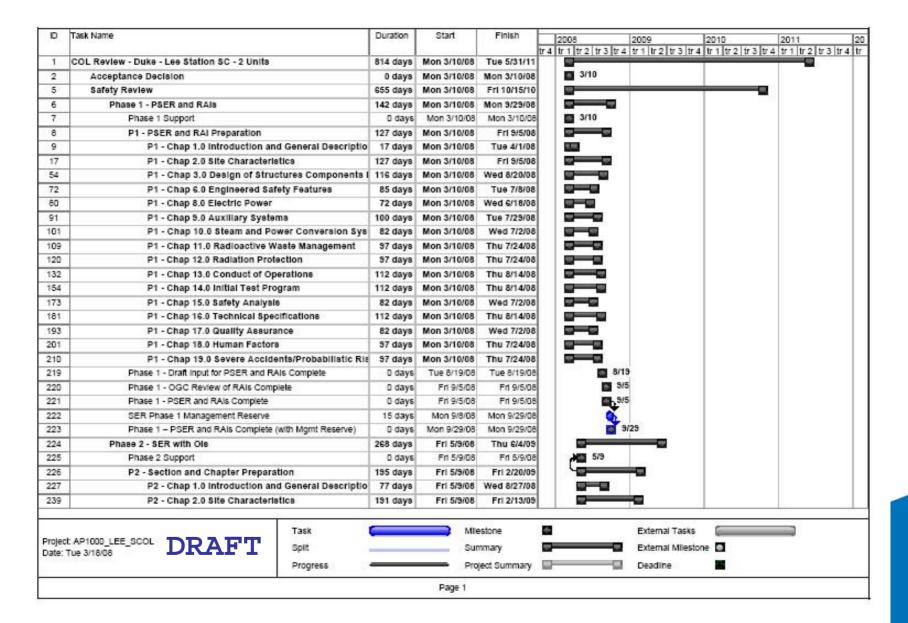


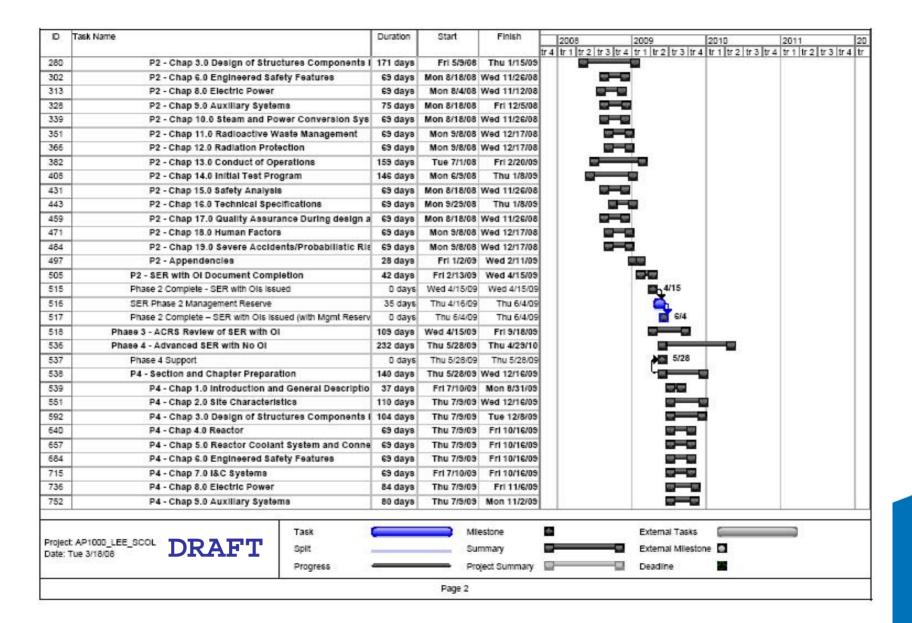
- AP1000 design certification amendment (DCA) and reference combined license (R-COL) must be issued before subsequent COL (S-COL) may be issued
 - •Necessitates resolution of DCA issues (e.g. sump strainer issue) and R-COL standard information review consistent with design-centered review approach
- Resolution of Lee S-COL acceptance review issues:
 - near-surface site ground motion effects methodology review not previously evaluated by the NRC
 - issue associated with update of the Eastern Tennessee Seismic Zone source models
 - characterization of the dynamic response of the fill material beneath the Radioactive Waste building and the impacts and the potential adverse effects on the abutting Class 1 structure

AP1000 DCA, Bellefonte R-COL & Lee S-COL *DRAFT* Schedules









D	Task Name	Duration	Start	Finish		2008	2009			2010	2011	
	3 SA - 15 SA -	-3.7-2			tr 4	tr 1 tr 2 tr 3 tr 4		2 tr 3 tr				r 3 tr 4
789	P4 - Chap 10.0 Steam and Power Conversion Sys	69 days	Thu 7/9/03	Fri 10/16/09				-			91101.000.100	
813	P4 - Chap 11.0 Radioactive Waste Management	69 days	Frl 7/10/09	Frl 10/16/09	1				1			
829	P4 - Chap 12.0 Radiation Protection	69 days	Thu 7/9/09	Frl 10/16/09	1							
845	P4 - Chap 13.0 Conduct of Operations	127 days	Thu 5/28/09	Frl 11/27/09	1		1		9			
872	P4 - Chap 14.0 Initial Test Program	72 days	Thu 7/9/09	Wed 10/21/09	1			-	1			
896	P4 - Chap 15.0 Safety Analysis	69 days	Thu 7/9/09	Fri 10/16/09	1			-				
936	P4 - Chap 16.0 Technical Specifications	69 days	Frl 7/10/09	Frl 10/16/09				-	ш			
953	P4 - Chap 17.0 Quality Assurance	69 days	Thu 7/9/09	Frl 10/16/09	1			-	1			
967	P4 - Chap 18.0 Human Factors	69 days	Frl 7/10/09	Fri 10/16/09				-	ı			
991	P4 - Chap 19.0 Severe Accidents/Probabilistic Ris	69 days	Frl 7/10/09	Fri 10/16/09	1			-	ш			
1004	Appendencies	18 days	Wed 11/18/09	Mon 12/14/09				1				
1012	P4 - Advanced SER with No OI Document Completion	42 days	Wed 12/16/09	Thu 2/18/10	1					77		
1022	Phase 4 Complete - Advanced SER Issued	0 days	Thu 2/18/10	Thu 2/18/10						2/18		
1023	SER Phase 4 Management Reserve	50 days	Fri 2/19/10	Thu 4/29/10								
1024	Phase 4 Complete – Advanced SER Issued (with Mgmt Rese	0 days	Thu 4/29/10	Thu 4/29/10						4/29		
025	Phase 5 - ACRS Review of Advanced SER with No OI	124 days	Thu 2/18/10	Fri 8/13/10						T T		
043	Phase 6 - FSER with No OI	118 days	Thu 4/29/10	Frl 10/15/10								
1044	Phase 6 Support	0 days	Thu 4/29/10	Thu 4/29/10						4/29		
1045	P6 - Chapter Preparation	31 days	Thu 4/29/10	Fri 6/11/10						Ten .		
1046	P6 - Chap 1.0 Introduction and General Descriptio	30 days	Thu 4/29/10	Thu 6/10/10	1					10.10		
1055	P6 - Chap 2.0 Site Characteristics	31 days	Thu 4/29/10	Fri 6/11/10						0.00		
1064	P6 - Chap 3.0 Design of Structures Components (31 days	Thu 4/29/10	Fri 6/11/10	1					10.00		
1073	P6 - Chap 4.0 Reactor	30 days	Thu 4/29/10	Thu 6/10/10						10.00		
1082	P6 - Chap 5.0 Reactor Coolant System and Conne	30 days	Thu 4/29/10	Thu 6/10/10	1					100 100		
1091	P6 - Chap 6.0 Engineered Safety Features	31 days	Thu 4/29/10	Fri 6/11/10								
100	P6 - Chap 7.0 I&C Systems	30 days	Thu 4/29/10	Thu 6/10/10						10.10		
1109	P6 - Chap 8.0 Electric Power	30 days	Thu 4/29/10	Thu 6/10/10						est este		
1118	P6 - Chap 5.0 Auxiliary Systems	31 days	Thu 4/29/10	Fri 6/11/10	1					-		
127	P6 - Chap 10.0 Steam and Power Conversion Sys	30 days	Thu 4/29/10	Thu 6/10/10						90,000		
1136	P6 - Chap 11.0 Radioactive Waste Management	30 days	Thu 4/29/10	Thu 6/10/10						100 100		
1145	P6 - Chap 12.0 Radiation Protection	30 days	Thu 4/29/10	Thu 6/10/10						40.00		
1154	P6 - Chap 13.0 Conduct of Operations	31 days	Thu 4/29/10	Fri 6/11/10						10.00		
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	Task		MIN	estone	6		Exter	nal Task	5			
	AP1000_LEE_SCOL DD X TT SAIR			nmary	100			nal Miles				
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	Progress	100	Pro	ect Summary	let		Dead	line				

	Task Name	Duration	Start	Finish	2008	2009	9 1:	2010	20	11	. 2
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1163	P6 - Chap 14.0 Initial Test Program	31 days	Thu 4/29/10	Fri 6/11/10				OUT HOP			
172	P6 - Chap 15.0 Safety Analysis	30 days	Thu 4/29/10	Thu 6/10/10				W 100			- 1
1181	P6 - Chap 16.0 Technical Specifications	31 days	Thu 4/29/10	Fri 6/11/10]			401.00			- 1
190	P6 - Chap 17.0 Quality Assurance	31 days	Thu 4/29/10	Fri 6/11/10	1			40.45			
1199	P6 - Chap 18.0 Human Factors	31 days	Thu 4/29/10	Fri 6/11/10	1			意動			
1208	P6 - Chap 19.0 Severe Accidents/Probabilistic Ris	31 days	Thu 4/29/10	Fri 6/11/10	1			-			
1217	P6 - FSER with No OI Document Completion	27 days	FrI 6/11/10	Wed 7/21/10	1			99.00			- 1
1229	Phase 6 Complete - FSER Issued	0 days	Wed 7/21/10	Wed 7/21/10					7/21		- 1
1230	SER Phase 6 Management Reserve	60 days	Thu 7/22/10	Fri 10/15/10							
1231	Phase 6 Complete - FSER Issued (with Mgmt Reserve)	0 days	Fri 10/15/10	Fri 10/15/10	1			160	10/1:	5	- 1
1232	Safety Review Complete	0 days	Fri 10/15/10	Fri 10/15/10					10/1	5	
1332	Hearings	811 days	Mon 3/10/08	Thu 5/26/11		-	-	12105	-	-	ı
1333	Pre FSER/FEIS PreHearing	243 days	Mon 3/10/08	Thu 2/26/09						920	
1352	Post FSER/FEIS Hearing	216 days	Wed 7/21/10	Thu 5/26/11						-	- 1
1376	lesuance of COL	13 days	Thu 5/12/11	Tue 5/31/11	1			3,000	201	CON	
1377	Prepare COL Licensing Package	5 edays	Thu 5/12/11	Tue 5/17/11						h	
1378	Preparation of Licensing Package Completed	0 days	Thu 5/26/11	Thu 5/26/11						5/26	
			Thu 5/26/11	Tue 5/31/11						100	
1379	Obtain Concurrences	3 days	1110 3/26/11	106 202 1111							
	Obtain Concurrences Issue COL	0 days								o 5/31	Ц
	in the second se										
1386	in the second se		Tue 5/31/11			Ex	ternal Tasks ternal Milestone adline				

Environmental Review Milestones DRAFT



	Review Phases	Completion Date (Target)
P1	Scoping	October 2008
	Federal Register Notice of Intent Published	March 2008
	Environmental Impact Statement (EIS) Public Scoping Meeting	May 2008
	EIS Scoping Period Ends	May 2008
	EIS Scoping Summary Report Issued	September 2008

Environmental Review Milestones DRAFT



	Review Phases	Completion Date (Target)
P2	Draft Environmental Impact Statement (DEIS)	May 2008
	EIS Site Audit (NRC, PNNL, DHS)	April 27- May 02, 2008
	EIS Site Audit of alternate sites (NRC)	April 27-28, 2008
	EIS RAIs issued to applicant	August 2008
	EIS RAI responses received from applicant	September 2008
	DEIS NUREG filed with Environmental Protection Agency (EPA)	March 2009
	NRC issues <i>Federal Register</i> Notice of Availability of DEIS	April 2009
	EPA issues Federal Register Notice of Filing	April 2009

Environmental Review Milestones DRAFT



	Review Phases	Completion Date (Target)
P3	Draft Environmental Impact Statement Comment Period	November 2009
	DEIS public meeting near site complete	May 2009
	DEIS public comment period ends	June 2009
P4	Final Environmental Impact Statement (FEIS)	January 2010
	FEIS published to ADAMS	February 2010
	Federal Register Notice of Availability of FEIS published	March 2010



Questions?