



# ALWR Requirements Safety Evaluation Report

Status  
August & September 1992

Prepared By the EPRI ALWR Program

October 9, 1992

EPRI Electric Power Research Institute • 3412 Hillview Avenue, Palo Alto, CA 94303

9210150046 921009  
PDR PROJ  
669A PDR

## Introduction

This is the bi-monthly report prepared by the EPRI/ALWR Staff concerning the progress toward completion of Safety Evaluation Reports (SERs) on Volume II and Volume III of the Utility Requirements Document. Three measures of progress are noted:

	Page
Central Issues .....	1
Safety Evaluation Issues .....	3
SECY 91-161 Milestones .....	5

This report is summary in nature and does not include background or explanation of individual entries. For further explanation or comments, please contact George Bockhold, ALWR Senior Program Manager (415-812-2826) or John Trotter, ALWR Regulatory Interface Manager (415-812-2810).

### NOTES FOR THIS MONTH

- The Final SER for the Evolutionary Plant was delivered on September 15, 1992
- The ALWR Program response to the June 25 draft policy paper was sent to the NRC on August 21.
- The final two portions of the ALWR Program response to the Passive Plant Draft Safety Evaluation Report were submitted to the NRC - the last portion on September 2.
- Commission Briefings by ALWR/USC Management on September 3 and by NRC Management on September 8

## Central Issues

- SEE LIST ON NEXT PAGE
- AUGUST & SEPTEMBER ACTIVITIES

### MEETINGS

- August 13, NRC and ALWR Management, Key Policy Issues Meeting
- September 3, ALWR Program Brief for Commission
- September 8, NRC Management Brief for Commission
- September 10, ACRS Meeting on Policy Issues
- September 15 and 16, Source Term Meeting

### REPORTS/SUBMITTALS

- August 21, Kintner to Murley, Response to June 25 Draft Policy Paper
- September 18, Trotter to Wilson, Volume III Close-out and Topical Meetings

- STATUS AS OF END OF SEPTEMBER

	Evolutionary Plant	Passive Plant
Issues Identified (NRC list)	35	43
Issues NA to URD Review	5	5
Issues Considered by ALWR Program NA to the Passive Plant	-	2
Issue resolutions available("done")	5	16
Issues Closed	20	9

- PLANNED OCTOBER & NOVEMBER ACTIVITIES

### MEETINGS (Ref: 9/18 letter, Trotter to Wilson)

- DSER Issues on Non-Safety Systems
- Passive Plant Reliability Assurance Program
- Site Parameters
- Emergency Planning
- Source Term Calculation Methodology

### REPORTS/SUBMITTALS

- October 6, Bockhold to Wilson, URD Changes on SGTR and Alarm Reliability
- November, URD Changes Related to Passive Plant O-RAP and Technical Specifications
- URD changes for Source Term dose calculation

# Requirements Central Issues List

	ISSUE	EP Status*	PP Status*	BWR-PWR
I	SECY-90-016 Issues	-	-	-
	A use of physically-based source term	done		both
	B anticipated transients without scram	closed	done	both
	C mid-loop operation	closed	done	PWR
	D station black out	closed	NA	both
	E fire protection	closed	done	both
	F intersystem loss-of-coolant-accident	done	done	both
	G hydrogen control	closed	done	both
	H core concrete interaction - ability to cool core debris	closed	closed	both
	I high pressure core melt ejection	closed	closed	both
	J containment performance	done	done	both
	K dedicated containment vent penetration	closed	done	both
	L equipment survivability	closed	done	both
	M elimination of operator actions earthquake	closed	done	both
	N in-service testing of pumps and valves	closed	closed	both
II	Greater Evolutionary and Passive Design Issues	-	-	-
	A industry codes and standards	closed	closed	both
	B electrical distribution	closed	NA	both
	C seismic hazard curves and design parameters	closed		both
	D leak-before-break	closed	closed	both
	E classification of main steamlines of boiling water reactors (BWRs)	closed	closed	BWR
	F tornado design basis	closed	closed	both
	G containment bypass	done	done	both
	H containment leak rate testing	closed	closed	both
	I post-accident sampling system			both
	J level of detail	NA	NA	both
	K prototyping	NA	NA	both
	L ITAAC	NA	NA	both
	M reliability assurance program	closed		both
	N site specific probabilistic risk assessments	closed	closed	both
	O SAMDAs	NA	NA	both
	P generic rulemaking related to design certification	NA	NA	both
	Q common mode failures in digital I&C control systems			both
	R beyond design basis analysis of external events			both
	S multiple steam generator tube ruptures	done	done	both
	T PRA beyond design certification			both
	U control room annunciator reliability			both
III	Passive Design Issues Only	-	-	-
	A regulatory treatment of non-safety systems	NA		both
	B definition of passive failure	NA	done	both
	C thermal-hydraulic stability of the simplified boiling water reactor (SBWR)	NA	done	BWR
	D safe shutdown requirements	NA	done	both
	E control room habitability	NA	done	both
	F radionuclide attenuation	NA		both
	G simplification of off-site emergency planning	NA		both
	H role of control room operator in Passive Plant	NA	done	both

## \* "Status" Codes:

NA = not applicable to Evolutionary or Passive Design Requirements

done = all EPRI/ALWR work done and available for discussion with the NRC

closed = no additional interaction expected between EPRI/ALWR and the NRC for SER

# Safety Evaluation Issues (Evolutionary and Passive Plants)

## • AUGUST & SEPTEMBER ACTIVITIES

### MEETINGS

- August 7, ACRS, Evolutionary Plant Final SER
- August 13, Evolutionary Plant Final SER Issues
- September 3, ALWR Program Brief for Commission
- September 16, PP DSER Open Issues Meeting
- September 30, DSER Issues Ch. 2, 4 and 7

### REPORTS/SUBMITTALS

- August 3, Bockhold to Wilson, "Evolutionary Plant FSER ISSUES - Charcoal Filters"
- August 19, Second Part of Passive Plant DSER Issues Response
- September 2, Third Part of Passive Plant DSER Issues Response
- September 29, Trotter to Wilson, Branch Review Books (HICB sent on 10/5)

## • STATUS AS OF END OF SEPTEMBER

NOTE: Evolutionary Plant issues no longer tracked.

	Passive
Issues Identified	551
Closed (per ALWR Chapter Manager)	229
SER Input to NRC Project Manager	153

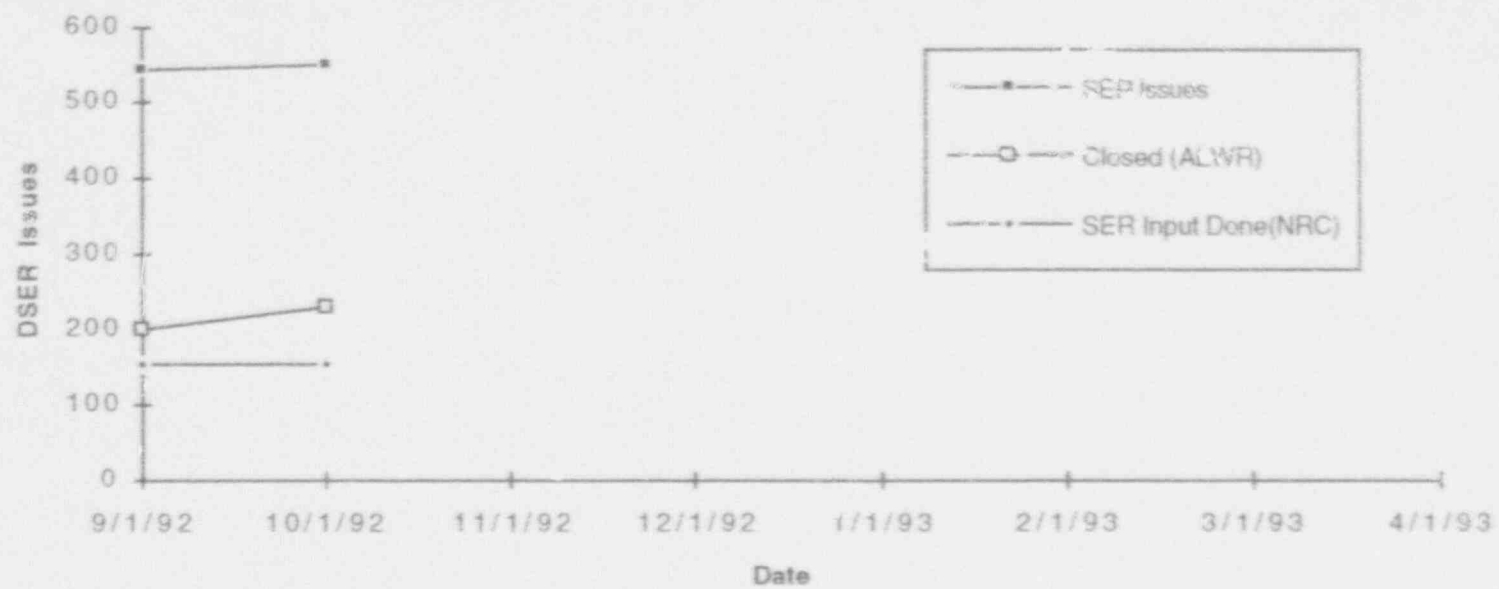
## • PLANNED OCTOBER & NOVEMBER ACTIVITIES

### MEETINGS

- October 1, DSER Issues, Various Chapters
- Early November, Human Factors DSER Issues
- Early November, I & C DSER Issues
- Early November, Turbine Design and Chapter 13 DSER Issues
- November, Seismic Engineering DSER Issues
- DSER Issues Related to Bolting

### REPORTS/SUBMITTALS

- Seismic (High Frequency) Spectrum Report



## SECY 91-161 Milestones

- SEE LIST ON NEXT TWO PAGES
- MILESTONES REACHED IN AUGUST & SEPTEMBER
  - EP- ACRS Review of FSER
  - EP- Commission Review of FSER
  - PP- Appli. Reviews DSER & Responds
  - EP- Commission Decision
  - EP- ACRS Review of [DRAFT] Policy Paper
  - PP- ACRS Review of [DRAFT] Policy Paper
  - EP- FSER Issued to Applicant
- MILESTONE ACTIVITIES IN AUGUST & SEPTEMBER

### MEETINGS

- August 7, ACRS, Evolutionary Plant Final SER
- August 13, NRC and ALWR Management, Key Policy Issues Meeting
- September 10, ACRS Meeting on Policy Issues

### REPORTS/SUBMITTALS

- August 17, ACRS Review of Policy Issues
- August 18, ACRS Review of Volume II of the Utility Requirements Document
- August 19, Second Part of Passive Plant DSER Issues Response
- August 21, Kintner to Murley, Response to June 25 Draft Policy Paper
- September 2, Third Part of Passive Plant DSER Issues Response
- September 15, FSER Issued to Applicant
- September 16, ACRS Review of (EP) Draft Policy Paper
- September 16, ACRS Review of Digital Instrumentation and Control System Reliability

- STATUS AS OF END OF SEPTEMBER

NOTE: Status is based on the modifications to the SECY-91-161 Milestones that have developed since that schedule was produced. Specifically, "Policy" development now involves a "draft" stage that receives industry and ACRS review and there does not appear to be the two-part process for Passive Plant Policy that was part of SECY-91-161. Also, for the Evolutionary Plant, there has been a commitment for a "supplement" at about the time of the Passive Plant final SER.

	Evolutionary Plant (23 Tasks)	Notes	Passive Plant (31 Tasks)	Notes
Tasks Completed	14		11	
Tasks Due But Not Done	6	Policy Review	6	Policy Review
Longest slip	18 months	Policy Papers and Review	8 months	Policy Papers and Review
Final SER Scheduled per SECY-91-161	August 18, 1992		September 24, 1993	
Final SER: EPRI/ALWR staff estimate	September 21, 1992	Commission review, incl. ACRS letter	September 24, 1993	

- **MILESTONES DUE (SECY-91-161) IN OCTOBER & NOVEMBER**

- PP- Identify New Policy Issues

- **MILESTONES EXPECTED IN OCTOBER & NOVEMBER**

- EP- Prepare Policy Papers
- PP- Prepare Policy Papers
- EP- Trans. Policy Papers to Com.
- PP- Trans. Policy Papers to Com.

- **PLANNED OCTOBER & NOVEMBER ACTIVITIES**

**MEETINGS**

- None

**REPORTS/SUBMITTALS**

- None



# SECY-91-161 Evolutionary Plan: SER Milestones

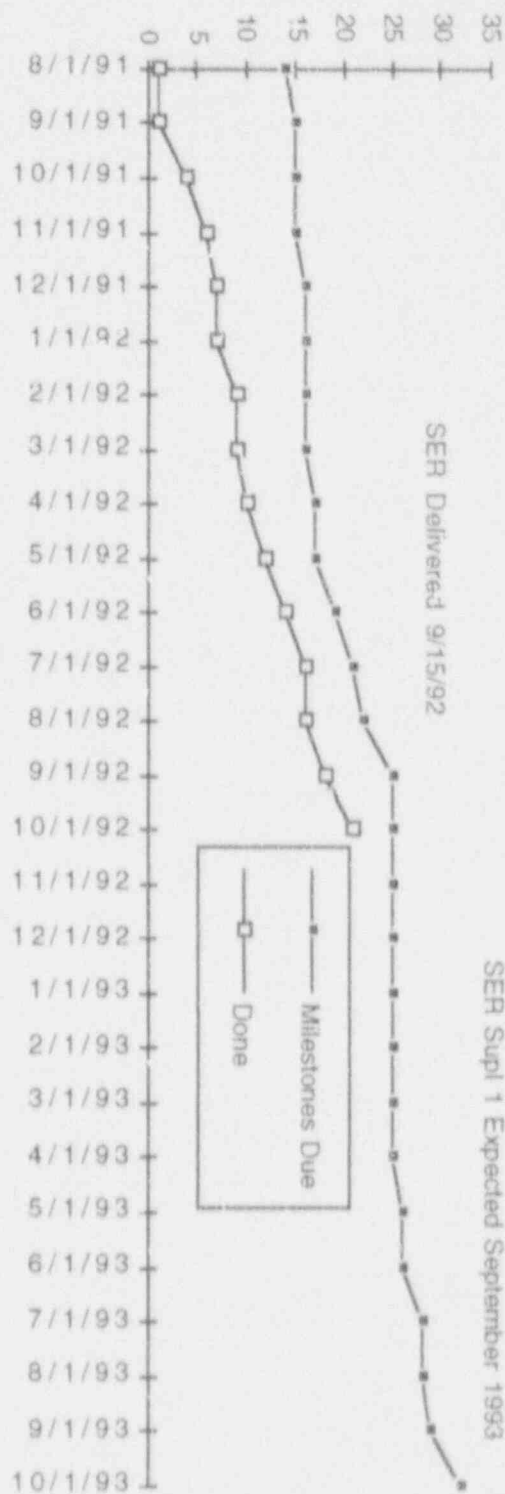
	SECY-91-161 Start Date	SECY-91-161 End Date	Status	Actual/ALWR Estimated End Date
Receipt of Application	6/30/86	10/26/89	complete	10/26/89
<b>Preliminary Evaluation Phase</b>				
Review of Appl/RAIs to I M	6/30/86	8/30/90	complete	9/5/91
PM Issues RAIs	1/5/87	8/30/90	complete	9/5/91
<b>Policy Issue Identification</b>				
Identify Policy Issues	9/6/88	11/26/90	complete	4/30/92
Prepare [DRAFT] Policy Papers	NA	NA(est 6/92)	complete	6/25/92
Trans. [DRAFT] Policy Papers to Com./ACRS	NA	NA(est 6/92)	complete	6/25/92
ACRS Review of [DRAFT] Policy Paper	1/19/89	4/23/91	complete	9/16/92
Prepare Policy Papers	11/3/88	3/25/91	overdue	11/20/92
Trans. Policy Papers to Com.	1/19/89	3/25/91	overdue	11/25/92
Com. Review of Policy Paper	1/19/89	6/17/91	overdue	12/31/92
Commission Guidance to Staff	6/26/90	6/17/91	overdue	1/4/93
<b>Appl. Responds to RAIs</b>	3/27/87	12/21/90	complete	1/9/92
<b>DSER Preparation/Issuance</b>				
DSER to PM	3/27/87	6/10/91	complete	9/13/91
PM Prepare DSER	2/18/88	6/28/91	complete	10/15/91
DSER to Commission/ACRS	2/18/88	6/28/91	complete	10/15/91
DSER Issued to Applicant	2/18/88	7/12/91	complete	11/4/91
ACRS Review of DSER	2/18/88	8/9/91	complete	1/22/92
<b>Appl. Reviews DSER &amp; Responds</b>	2/18/88	11/1/91	complete	3/6/92
<b>FSER Preparation/Issuance</b>				
FSER to PM	9/7/90	3/11/92	complete	4/1/92
PM Prepares FSER	2/10/92	5/12/92	complete	5/15/92
FSER to Commission/ACRS	5/13/92	5/13/92	complete	5/15/92
ACRS Review of FSER	5/13/92	7/15/92	complete	8/18/92
Commission Review of FSER	5/13/92	8/14/92	complete	8/18/92
Commission Decision	8/17/92	8/17/92	complete	9/14/92
<b>FSER Issued to Applicant</b>	8/17/92	8/18/92	complete	9/15/92
<b>SER, Supl Preparation/Issuance</b>	ASSUME SAME DATES AS PASSIVE PLANT FSER			
SER, Supl 1 to PM	NA	NA(est 4/93)		4/16/93
PM Prepares Supl 1	NA	NA(est 6/93)		6/18/93
Supl 1 to Commission/ACRS	NA	NA(est 6/93)		6/21/93
ACRS Review of Supl 1	NA	NA(est 8/93)		8/20/93
Commission Review of Supl 1	NA	NA(est 9/93)		9/22/93
Commission Decision	NA	NA(est 9/93)		9/23/93
<b>SER Supl 1 Issued to Applicant</b>	NA	NA(est 9/93)		9/24/93

# SECY-91-161 Passive Plant SER Milestones

	SECY-91-161 Start Date	SECY-91-161 End Date	Status	Actual/ALWR Estimated End Date
Receipt of Application	9/7/90	9/7/90	complete	9/7/90
<b>Preliminary Evaluation Phase</b>				
Review of App/RAIs to FV	9/7/90	6/14/91	complete	9/13/91
Initial Review	9/7/90	11/29/90	complete	11/29/90
Technical Review/RAI Development	9/7/90	6/14/91	complete	9/23/91
PM Issues RAIs	11/20/90	6/20/91	complete	9/23/91
<b>Policy Issue Identification</b>				
Identify Policy Issues	3/19/90	6/6/91	complete	4/30/92
Prepare [DRAFT] Policy Papers	NA	NA(est 6/92)	complete	6/25/92
Trans. [DRAFT] Policy Papers to Com./ACRS	NA	NA(est 6/92)	complete	6/25/92
ACRS Review of [DRAFT] Policy Paper	12/17/90	11/14/91	complete	9/16/92
Prepare Policy Papers	11/19/90	9/11/91	overdue	11/20/92
Trans. Policy Papers to Com.	12/17/90	9/12/91	overdue	11/25/92
Com. Review of Policy Paper	12/17/90	12/17/91	overdue	12/31/92
Commission Guidance to Staff	12/17/91	12/17/91	overdue	1/4/93
<b>Appl. Responds to RAIs</b>	5/9/91	10/14/91	complete	4/24/92
<b>DSER Preparation/Issuance</b>				
DSER to PM	9/3/91	2/10/92	complete	3/13/92
PM Prepare DSER	12/23/91	4/13/92	complete	4/13/92
DSER to Commission/ACRS	4/14/92	4/14/92	complete	4/14/92
DSER Issued to Applicant	4/14/92	4/28/92	complete	4/24/92
ACRS Review of DSER	4/14/92	5/13/92	NA	NA
<b>Appl. Reviews DSER &amp; Responds</b>	4/30/92	9/2/92	complete	9/2/92
<b>New Policy issue(*) Identification</b>				
Identify New Policy Issues	9/3/92	10/5/92	complete	6/25/92
Prepare Policy Papers	10/6/92	12/9/92		1/15/93
Trans. Policy Papers to Com.	12/10/92	12/10/92		3/1/93
ACRS Review of Policy Paper	12/10/92	2/12/93		4/1/93
Com. Review of Policy Paper	12/10/92	3/17/93		5/1/93
Commission Guidance to Staff	3/18/93	3/18/93		5/15/93
<b>FSER Preparation/Issuance</b>				
FSER to PM	8/4/92	4/16/93		4/16/93
PM Prepare FSER	3/18/93	6/18/93		6/18/93
FSER to Commission/ACRS	6/21/93	6/21/93		6/21/93
ACRS Review of FSER	6/21/93	8/20/93		8/20/93
Commission Review of FSER	6/21/93	9/22/93		9/22/93
Commission Decision	9/23/93	9/23/93		9/23/93
<b>FSER Issued to Applicant</b>	9/23/93	9/24/93		9/24/93

(\*) Currently thought to be: Re-treatment of NS Systems; Digital System Reliability; and, perhaps, OBE Elimination

# Evolutionary Plant, SECY 91-161 Milestones



# Passive Plant, SECY 91-161 Milestones

