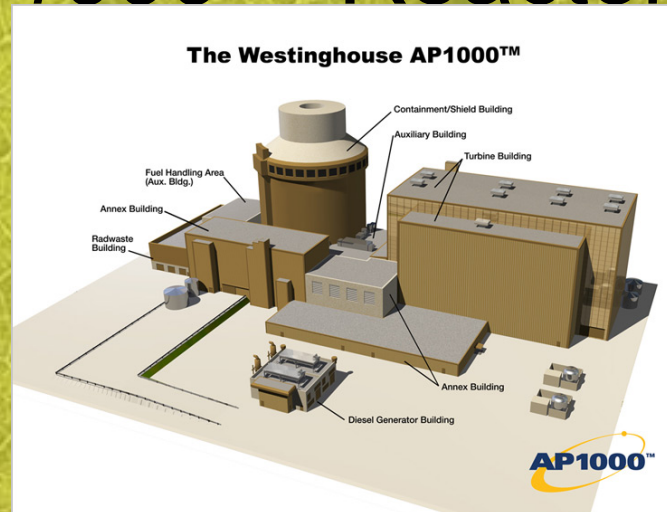


Methodology for Ensuring the Integration of ALARA into the Design of the *AP1000*TM Reactor



Erik Slobe

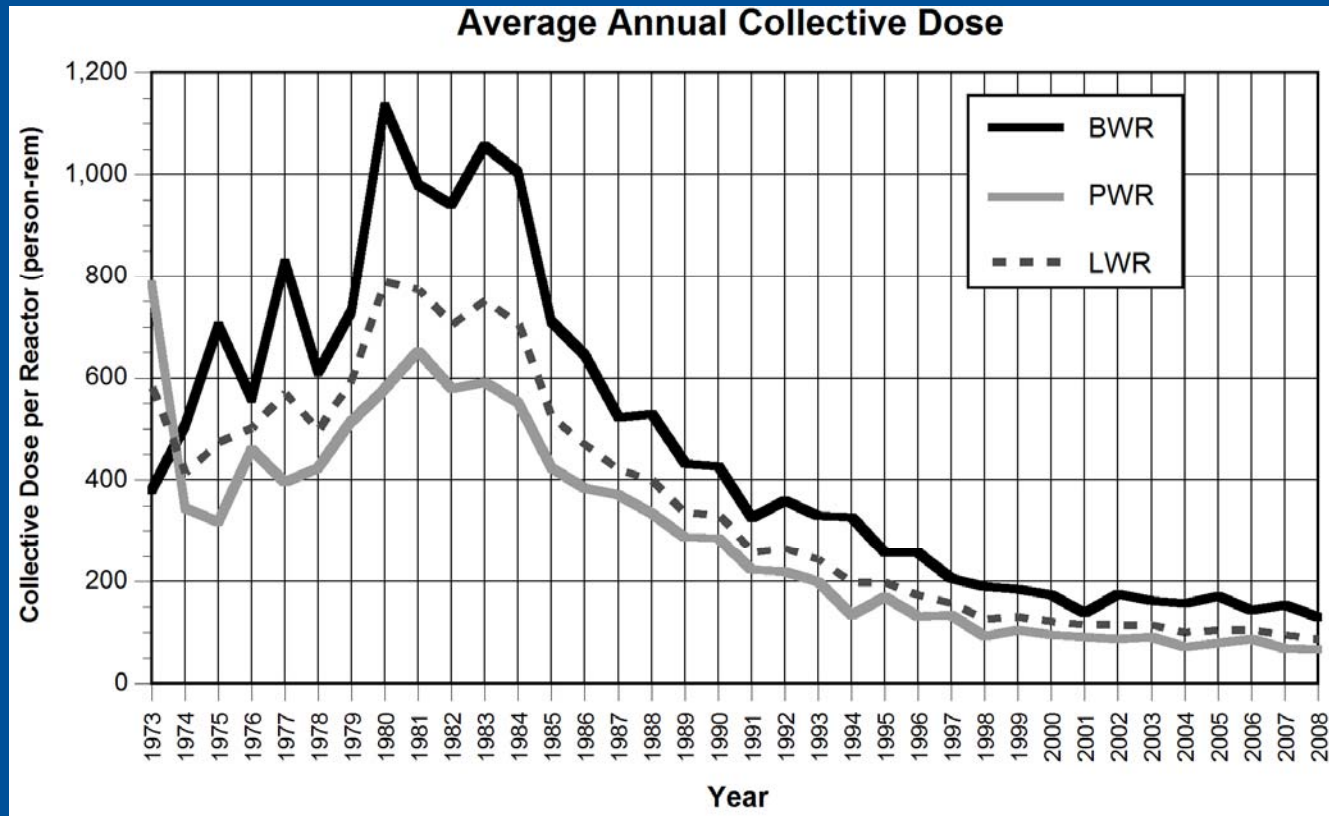
2010 ISOE International Symposium

November 17-19, 2010

Overview

- ALARA Guidelines Manual
- Design Control Document
- Reviews
- Cumulative Results

Currently Operating US Plants



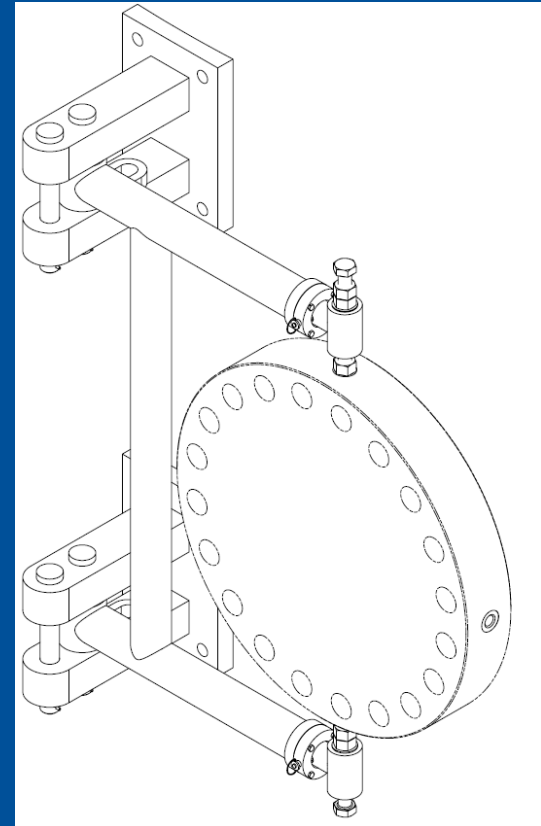
Source: "Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities,"
U. S. NRC, NUREG-0713 Vol. 30, January 2010

ALARA Guidelines Manual

- Regulatory Guides
 - Reg Guide 8.8, 8.10, 8.19
 - 10 CFR Part 20 and 10 CFR Part 50
- Radiation Background
- Typical Radiation Fields
- ALARA Design Checklist

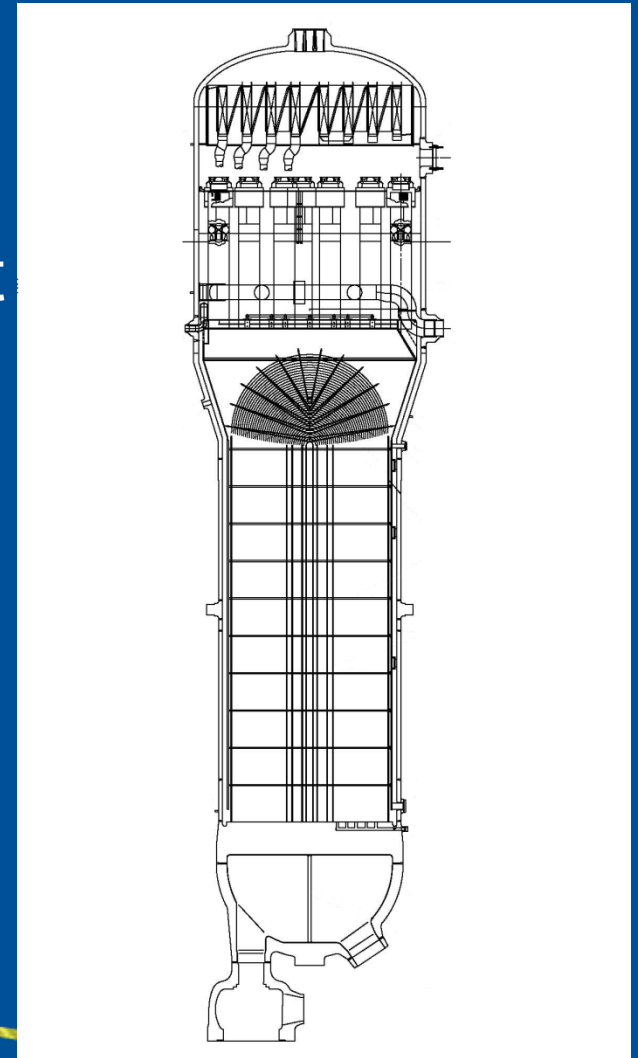
ALARA Guidelines Manual Continued

- Dose Reduction Methods
 - Surface Smoothing
 - Chemistry Controls
 - Decontamination
 - Work Time Reduction
 - Distance and Shielding



Design Control Document

- Cobalt Restrictions
 - Steam Generators
 - High Neutron Flux Equipment
- Equipment Design Features
 - Sludge Control
- Layout Design Features
 - Pressurizer Spray Valves



Reviews

- Design Reviews
- COMIT Reviews
- Dose Assessments
- Design Change Proposals

Cumulative Results

- ALARA features incorporated into every system
- Many checks throughout design process
- Less than 25 Person-Rem (0.25 Person-Sv)
estimated annual exposure