



Criticality Safety Engineer Training at Savannah River Nuclear Solutions LLC

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Outline

- **History/Background**
- **SRNS Criticality Safety Engineer (CSE) Training & Qualification (T&Q) Program Overview**
 - Qualification Levels and Flow Path
 - Qualification Level Requirements
 - Program Administration
 - Maintaining Qualification
- **Lessons Learned**

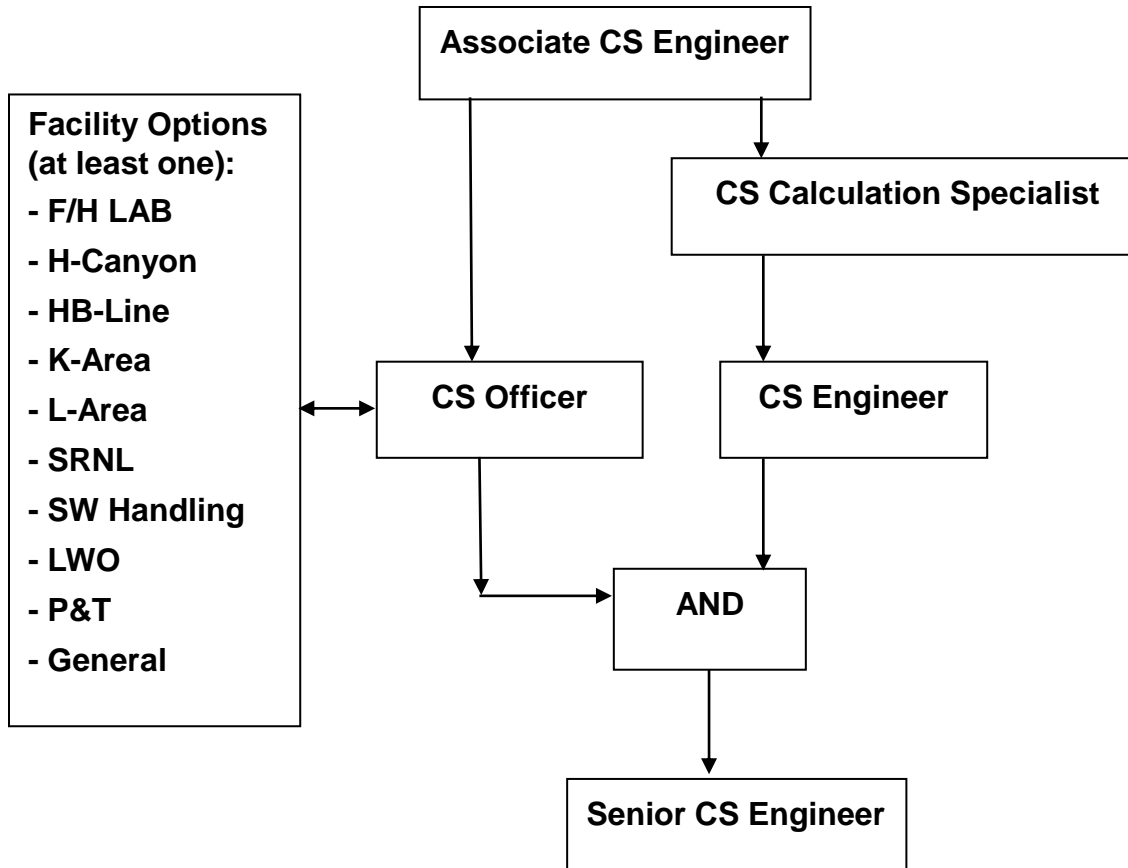
History/Background

- SRNS New M&O Contractor at SRS August 2008
- Criticality Function Brought Back Onsite
- Need for SRNS Criticality Safety Engineer (CSE) Training & Qualification (T&Q) Program
- Reliance on Previous Contractor CSE T&Q Program until SRNS Program Developed and Implemented

SRNS CSE T&Q Program Overview

- *SRNS Criticality Safety Engineer Training and Qualification Program Description* document Approved March 2009
- Compliance with ANSI/ANS-8.26-2007
- Qualification Consists of Combination of the Following:
 - Formal Education
 - Required Reading
 - On The Job Training
 - Continuing Training
 - Professional Development

Qualification Levels and Flow Path



Associate Criticality Safety Engineer

- **Required Reading**
 - DOE Orders and Standards
 - ANSI/ANS Standards
 - Guides
 - Other Criticality References
 - Site Specific Information
- **Tour Facility**

Associate Criticality Safety Engineer (cont.)

- **Read 3 Assigned NCSEs**
- **Classes/Competencies**
 - Fission Process, Radiation Interaction with Matter, and Neutron Absorbers
 - Nondestructive Assay (NDA) and Accountability Practices
 - Hand Calculation Method
 - NCSEs and Functional Classification
 - Site Technical Engineering Staff Classes
- **Written Exam or Oral Board**

Criticality Safety Officer

- **Required Reading**
 - DOE Orders and Standards
 - ANSI/ANS Standards
 - Guides
 - Other Criticality References
 - Site Specific Information
- **Tour of Facility**

Criticality Safety Officer (cont.)

- **Classes/Competencies**
 - Radiological Worker Training
 - Functional Classification
 - Hazards Analysis
 - Site Specific Information
- **Multiple Facilities**
 - Minimum Time in Facility
 - Minimum Number of Walkdowns
- **Oral Board**

Criticality Safety Engineer

- **Required Reading**
 - DOE Orders and Standards
 - ANSI/ANS Standards
 - Guides
 - Other Criticality References
 - Site Specific Information
- **Attend Hands-On Experimental Class (LLNL)**

Criticality Safety Engineer (cont.)

- **Classes/Competencies**
 - Read DSA/SAR (specific chapters)
 - Write 3 NCSEs (mentored by qualified CSE)
 - Hazards Analysis
 - Frequency Analysis
 - Validation Overview
 - Functional Classification
- **Complete Associate Criticality Safety Engineer and Calculation Specialist**
- **1 Year in Criticality**
- **Written Exam or Oral Board**

Senior Criticality Safety Engineer

- **Required Reading**
 - DOE Orders and Standards
 - ANSI/ANS Standards
 - Other Criticality References
 - Site Specific Information
- **Classes/Competencies**
 - Review 3 NCSEs (mentored by qualified Senior CSE)
- **Complete Both Criticality Safety Engineer and Criticality Safety Officer Qualifications**
- **3 Years in Criticality**
- **Written Exam or Oral Board**

Program Administration

- **Retention Matrix**
- **Training Organization**
 - Tracks Individual's Qualification
 - Automated Qualification Matrix (AQM)
 - Training Records And Information Network (TRAIN)

Maintaining Qualification

- **Facility Specific Training**
- **NCSE Development**
- **NCSE Technical Reviews (Senior CSE)**
- **CSOs**
- **Professional Development/Continuing Training**
 - Attend Onsite Criticality Safety Training Sessions/Seminars Annually
 - Attend Criticality Safety Related Workshop/Conference every 5 Years
 - Other Activities

Lessons Learned

- **Hardest Implementation**
 - Obtaining qualification on both CSE and CSO (facility) to qualify as Senior Criticality Safety Engineer
- **Greatest Timesaver**
 - Establishing an organizational homepage containing required reading or links to required reading
- **Most Useful**
 - Videotaping the classes
 - Establishing a Required Reading Database