

Safety Basis Academy Project

**Overview for EFCOG
Safety Analyst Working Group
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Safety Basis Academy Scope

- **10 CFR 830.122 requires personnel trained and qualified to perform their assigned work and provision for continuing training to maintain proficiency**
- **Safety Basis Academy (SBA) is a systematic effort establishing comprehensive training program meeting needs of personnel with safety basis responsibilities at hazardous DOE facilities**
 - Broad applicability with benefits for many sites within the DOE Complex
 - Collaborative effort with LANS/LANL as lead
 - With EFCOG participants, create set of SBA courses capable of supporting qualification efforts for both federal and contractor personnel

SBA: Three Objectives

- **Promoting uniformity in skill levels and analytical knowledge**
- **Supporting compliance with applicable regulations and established standards associated with nuclear safety functions**
- **Providing a standardized training program to provide skilled safety analysts**

Systematic Approach to Training

- **SBA Courses compliant with DOE Systematic Approach to Training (SAT)**
 - DOE Order 5480.20A: Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities
 - DOE Handbook 1078-94: Training Program Handbook: A Systematic Approach to Training (SAT)

“Training to support qualification and certification programs shall be based on a systematic approach to training. A graded approach shall be used to establish the systematic approach to training for operations personnel, maintenance personnel, technicians, and technical staff.”

DOE Order 5480.20A

Use of Systematic Approach to Training

- **Develops Safety Analyst Training Program specifications for individual courses by applying SAT**
- **Based on needs from across the complex and vetted agreements for design, assures appropriate consistency of focused training is available**

Analysis Phase

- **Began in July 2004; SBA Project start date**
- **Needs analysis and functional analysis for activities performed by safety analysts**
- **Methodology included lines of inquiry consistent with recommendations in Training Program Handbook: A Systematic Approach to Training (DOE-HDBK-1078-94)**
 - Do performance deficiencies exist?
 - Are employees capable of performing their jobs?
 - Do they perform the job frequently?
 - Are operating procedures adequate or have they changed significantly?
 - Are identified deficiencies training-related?

Analysis Phase

- **Input from 3 principle sources**
 - Document reviews
 - Personnel interviews
 - DOE Complex-wide survey
- **Interviews conducted with managers, supervisors, safety analysts, scientists, technical staff, operations and operations support personnel**
- **Survey results from 10 DOE sites suggest that performance issues identified at LANL are generally applicable across the DOE Complex**

Design Phase

- **Based on needs analysis & functional analysis**
- **Terminal objectives written that clearly state the measurable performance expected of trainee at conclusion of training**
- **Enabling objectives developed and sequenced**

Sample of Terminal Objective with Enabling Learning Objectives

- **Describe the process and sequence associated with development of the Safety Basis for a DOE nuclear or non-nuclear hazardous facility, process, or activity**
 - Describe a safety basis development process
 - Explain the term “Safe Harbor” as applied to safety basis development for DOE nuclear and non-nuclear hazardous activities
 - Define the term “Documented Safety Analysis” as identified in 10 CFR 830 and describe the term’s use as applied to non-nuclear hazardous activities
 - Describe the various types of safety basis documents that may be developed for DOE facilities, processes, or activities
 - Describe the Integrated Safety Management (ISM) process as required by DOE-P-450.4 and its relationship to the development and implementation of a Safety Basis
 - Describe the difference between an Authorization Basis and a Safety Basis

Design Phase

- **Created design specifications and Scope of Work for each Safety Analyst course**
 - Includes learning objectives, learning activity guidance, and deliverable schedule
 - Proposed appropriate training settings

Development Phase

- **Statements of Work (with design specifications & courseware development requirements) for SBA courses to vendors, followed by selection**
- **Test items developed consistent with learning objectives**
- **Pilot courses being conducted and vetted**

Safety Basis Academy Structure

- **Basic classes that provide a foundation of methodologies for producing safety basis documents applicable to any of the specialized areas**

- **Areas of specialization consisting of regulatory and specialized methods appropriate to nuclear safety, chemical safety and environmental**

Safety Analysis Basics Courses Pilot in FY2007-2009

What is included?

9 pilot courses in FY07

- 3 at basic level for new safety basis analysts
- 6 at specialty level for experienced safety basis analysts

Proposed for FY08-FY09

- 5 additional basic level courses
- 9 additional specialty level courses

Safety Analysis Basics and Specialty Courses Pilot in FY2007

Mar. 21-22	Safety Basis Overview
Apr. 16-19	Technical Safety Requirements
May 14-17	Safety Basis Doc. Prep. Adv. (DOE Standard 3009)
Jun. 18-21	MACCS2
Jun. 25-28	CFAST Modeling Code
Jul. 16-19	ALOHA Modeling Code
Aug. 1-2	EPIcode
Aug. 20-24	Hazard Evaluation Techniques I
Aug. 27-31	Hazard Evaluation Techniques II

Safety Analysis Basics Courses Pilot in FY2008-2009

Hazard Identification

Accident Analysis Techniques

Analytical Modeling Techniques Overview

Specific Hazards Analysis

Safety Basis Document Development

Safety Analysis Specialty Courses Pilot in FY2008-2009

GENII Modeling Techniques

MELCOR Modeling Techniques

Nuclear Safety Management

Hazard Categorization

Airborne Release Fractions and Respirable Fractions

Packaging and Transportation Safety Basis Documentation

Environmental Restoration, D&D Safety

Accelerator Facility Safety

Chemical Facility Safety

Next steps

- **SBA has set stage to continue development and implementation of a comprehensive Safety Analyst Training Program**
 - Broad applicability throughout the DOE Complex
- **SBA pilot implementation began in March 2007**

Safety Basis Academy Project Contact Information

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