

# Safety Basis Academy Project

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

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- **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 a 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

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- **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

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

# Five Phases of Systematic Approach to Training

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## ■ Analysis

- Problem statement
- Functional analysis - interviews with line management identify skills and knowledge required to accomplish job
- Needs analysis - identifies specific areas of training required to support the functional analysis

## ■ Design

- Terminal & enabling training objectives based on analysis
- Exams based on enabling training objectives

# Five Phases of Systematic Approach to Training

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## ■ Development

- Course lecture, examples, exercises based on learning objectives
- Instructor notes and lesson plan for consistent delivery
- SOWs out to vendors
- Select knowledgeable, qualified instructors

## ■ Implementation

- Select location, advertise course
- Deliver pilot courses

## ■ Evaluation

- Vetting courses with NNSA, contractors, students
- Based on feedback, finalize course materials

# Safety Basis Academy Structure

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- **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 Basis Academy Courses FY2007 - FY2008

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## What is included?

### **9 pilot courses delivered in FY07**

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

### **14 pilot courses proposed for FY08**

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

# Safety Analyst Basics and Specialty Courses Piloted in FY2007

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**Safety Basis Overview** (basic level)

**Hazard Evaluation Techniques I** (basic level)

**Hazard Evaluation Techniques II** (basic level)

**Technical Safety Requirements** (specialty - nuclear)

**Safety Basis Document Preparation (DOE STD 3009)** (specialty - nuclear)

**MACCS2 Modeling Code** (specialty - analytical)

**CFAST Modeling Code** (specialty - analytical)

**ALOHA Modeling Code** (specialty - analytical)

**EPIcode Modeling** (specialty - analytical)

# Safety Analyst **Basics Courses**

## Proposed to Pilot in FY2008

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**Hazard Identification**

**Accident Analysis Techniques**

**Analytical Modeling Techniques Overview**

**Specific Hazards Analysis**

**Safety Basis Document Development**

# Safety Analyst **Specialty Courses**

## Proposed to Pilot in FY2008

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**Nuclear Safety Management**

**Hazard Categorization**

**Airborne Release Fractions and Respirable Fractions**

**Packaging and Transportation Safety Basis Documentation**

**Chemical Facility Safety**

**Environmental Restoration, D&D Safety**

**Accelerator Facility Safety**

**MELCOR Modeling Techniques**

**GENII Modeling Techniques**

## Locations Where Courses are Piloted

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- **During FY 2007, several locations for SBA courses**
  - LANL, Los Alamos, NM
  - SNL, Albuquerque, NM
  - DOE NTC, Albuquerque, NM
  - Las Vegas Site Office, NV
  
- **During FY2008, courses will be held in several locations (TBD) throughout the complex**

# Attendees from across the DOE Complex

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- **During 2007, courses had participants from various sites**
  - DOE/NNSA Site Offices: Los Alamos, Sandia, Pantex, Oak Ridge, Chicago, Nevada
  - DOE/NNSA several programmatic offices
    - including Chief of Defense Nuclear Safety and CDNS - Authorization Basis Senior Advisor
  - Contractor Sites: LANL, SNL, LLNL, Y-12, SRS, BNL, RL, ANL, INEL, ORNL, NTS, WIPP
  - 182 total participants in nine courses piloted during FY2007
    - average of 20 per class
    - approximately 50/50 split between DOE/NNSA and contractors

# Collaboration with DOE National Training Center

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- **After the pilot, SBA courses are finalized**
- **DOE NTC maintains and distributes the courses to qualified instructors**
- **Seven courses will soon be available through DOE NTC**

**Safety Basis Overview**

**Technical Safety Requirements**

**Safety Basis Doc. Prep. Adv. (DOE Standard 3009)**

**MACCS2 Modeling Code**

**CFAST Modeling Code**

**ALOHA Modeling Code**

**EPIcode Modeling**

## Next steps

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- **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 and continues through 2008**

# Safety Basis Academy Project Contact Information

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