

**ISMS Training Document**  
**Track 2, Activity 11 – November 2010**  
**Safety Basis**

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**Activity**

Describe the role of safety basis documents and authorization agreements.

At the completion of this activity, fill out the Self-Certification Form certifying that you have read this activity sheet.

**Note:** When regulations, Department of Energy (DOE) directives, or other industry standards are referenced in this ISMS activity, please use the most recent version. In addition, please note that DOE Guides provide preferred, non-mandatory, supplemental information about acceptable methods for implementing requirements, including lessons learned, suggested practices, instructions, and suggested performance measures. Guides do not impose requirements but may quote requirements if the sources are adequately cited. Alternate methods may be used if it can be demonstrated that they provide an equivalent or better level of performance.

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**Key Documents**

- [10 CFR 830, Nuclear Safety Management, Subpart B, “Safety Basis Requirements”](#)
  - [DOE O 420.1B, Change 1, Facility Safety](#)
  - [DOE G 421.1-2, Implementation Guide For Use in Developing Documented Safety Analyses to Meet Subpart B of 10 CFR 830](#)
  - [DOE G 423.1-1, Implementation Guide For Use In Developing Technical Safety Requirements](#)
  - [DOE G 424.1-1B, Implementation Guide For Use In Addressing Unreviewed Safety Question Requirements](#)
  - [DOE O 425.1D, Verification of Readiness to Startup or Restart Nuclear Facilities](#)
  - [DOE O 460.1C, Packaging and Transportation Safety](#)
  - [DOE G 460.1-1, Implementation Guide for Use with DOE O 460.1, Packaging and Transportation Safety](#)
  - [DOE-STD-1020-2002, Natural Phenomena Hazards Design and Evaluation Criteria for Department of Energy Facilities](#)
  - [DOE-STD-1021-93, Natural Phenomena Hazards Performance Categorization Guidelines for Structures, Systems, and Components](#)
  - [DOE-STD-1022-94, Natural Phenomena Hazards Site Characterization Criteria](#)
  - [DOE-STD-1027-92, Change 1, Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports](#)
  - [DOE-STD-1083-2009, Processing Exemptions to Nuclear Safety Rules and Approval of Alternative Methods for Documented Safety Analyses](#)
  - [DOE-STD-1104-2009, Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents](#)
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- [DOE-STD-1120-2005, \*Integration of Environment, Safety, and Health into Facility Disposition Activities, Two Volumes\*](#)
  - [DOE-STD-1186-2004, \*Specific Administrative Controls\*](#)
  - [DOE-STD-3009-94, Change 3, \*Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses\*](#)
  - [DOE-HDBK-3010-94, \*Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities, Two Volumes\*](#)
  - [DOE-STD-3011-2002, \*Guidance for Preparation of Basis for Interim Operation \(BIO\) Documents\*](#)
  - ORO Directives Management Group, Key Management Documents, [http://www-internal.oro.doe.gov/dmg/oro\\_keymanagementdoc.htm](http://www-internal.oro.doe.gov/dmg/oro_keymanagementdoc.htm)
  - ORO Office of Science Federal employees should also refer to the Office of Science Management System (SCMS): Environment, Safety, and Health, Subject Area: *Facility Safety Authorization*, <http://scms.sc.doe.gov/>
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**What's In It For Me**

The ability of a contractor to operate a nuclear facility depends on the positive assurance of acceptable levels of environment, safety, and health (ES&H) risk. A safe operations envelope, or risk envelope, establishes the basis of operation for a nuclear facility and the basis for accepting the risk of operation. This is the safety basis.

The safety basis is established in the contractor's documentation that enables DOE Oak Ridge Office (ORO) to authorize operation. This authorization basis documentation communicates, in a formal manner, the commitment to ensure the safety and health of the public and workers and the safety of the environment.

The completion of this activity will help you gain an understanding of the role of safety basis documents and authorization agreements.

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**Safety Basis**

“Safety basis means the documented safety analysis and hazard controls that provide reasonable assurance that a DOE nuclear facility can be operated safely in a manner that adequately protects workers, the public, and the environment.” (10 CFR 830)

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**Authorization Basis**

The authorization basis (AB) provides the technical safety basis for authorization to operate a nuclear facility. AB documentation constitutes the contractor's acceptance of the risks of a facility's operations within DOE guidelines and provides information on which ORO bases its determination that activities at a facility can be conducted safely.

The AB quantifies, as much as required, the hazards and risks of the facility to workers, the public, and the environment and defines safety-related equipment, procedures, and practices. The AB must be established and maintained to ensure that operations are within the risk envelope. The AB can be modified and reestablished as needed through formalized processes.

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The AB is the primary reference on facility safety for operations, surveillance, change control, and management oversight. The contractor's manager of projects is the facility landlord or owner, and the facility manager is responsible for the safe operation of the facility in accordance with the AB.

For each categorized nuclear facility, the AB consists of the first three integrated safety management (ISM) core functions: define work in the facility, identify and analyze hazards, and establish facility-level controls. The level of detail, depth of analysis, and rigor of the controls are tailored and commensurate with potential hazard consequences, complexity of the facility, life-cycle stage, and other considerations identified by the authorizing individual(s).

The core functions are documented in the Documented Safety Analysis (DSA), and related Technical Safety Requirements (TSRs). Approved changes resulting from the unreviewed safety question (USQ) process and controls specified in the ORO Safety Evaluation Report are considered to be part of the AB. Environmental and other regulatory requirements covered by an authorization agreement may be considered as part of the authorization basis.

**Authorization Agreement**

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Authorization agreements should be prepared and maintained for Category 1 and 2 nuclear facilities and high and moderate hazard facilities (as defined in DOE-STD-1027-92). If line management determines that there is a need, authorization agreements may also be prepared for other facilities based on the complexity of operations/activities and the associated hazards.

The authorization agreement provide the basis for DOE to approve performance of the identified work and the basis for DOE's conclusion that the work defined in the agreement can be performed without undue risk to the workers, the public, and the environment. The authorization agreement typically identifies the following:

- the facility, task, or activity (scope of work) that it authorizes;
- the authorization basis applicable to the facility/operation/systems, and the controls to govern the work;
- any additional terms and conditions (controls and commitments) within which the facility must be operated to assure safety;
- the basis for DOE approval to perform the work and the basis for DOE's conclusion that the work defined in the agreement can be performed without undue risk to the workers, the public, and the environment; and
- the terms and conditions which specify contractor commitments for assuring DOE that the authorized work will be performed safely.

**To Learn More**

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Click on these documents for more information about the role of safety basis documents and authorization agreements.

- [10 CFR 830, Nuclear Safety Management, Subpart B, "Safety Basis Requirements"](#)

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