



Department of Energy's Nuclear Safety Framework

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DOE / HSS

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On Used Nuclear Fuel & High Level Waste

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Current DOE Nuclear Safety Framework



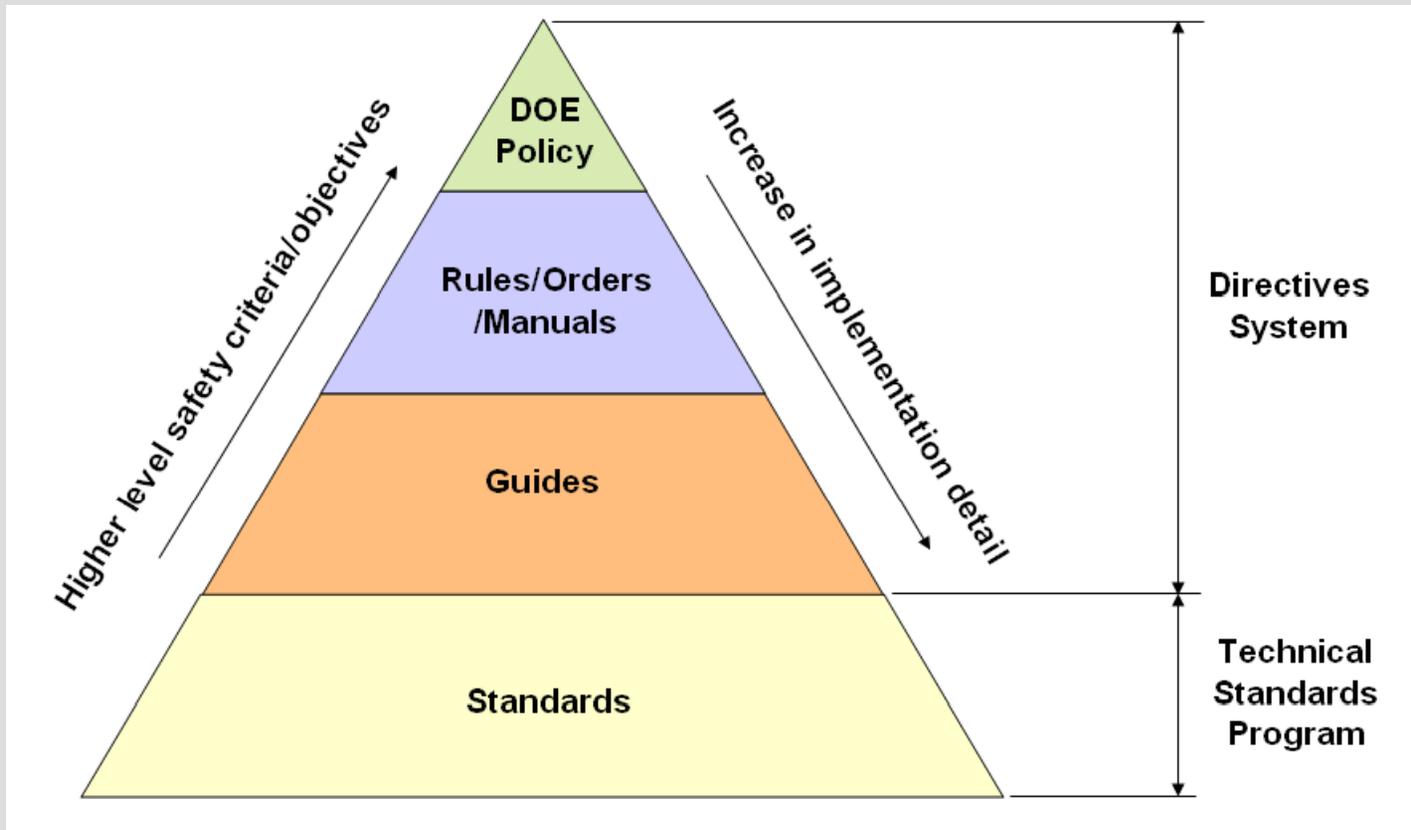
- A hierarchical set of governing documents:
 - Starts with Policies (sets high level expectations)
 - Rules and Orders (provide requirements)
 - Guides and Standards (provide acceptable methods and criteria)
- Framework defined in:
 - DOE Order 251.1C, *Departmental Directives Program*
 - DOE Order 252.1, *Technical Standards Program*



Current DOE Nuclear Safety Framework (continued)



DOE Directives and Technical Standards Hierarchy





Current DOE Nuclear Safety Framework (continued)



POLICY	SEN 35-91	
	"DOE facilities will be designed, constructed, operated, and decommissioned to assure the protection of the public, workers, and the environment."	
REGULATIONS	10 CFR 830, Subpart A Quality Assurance	10 CFR 830, Subpart B Safety Basis
	"Establish and Implement QA Plan"	"Establish, Maintain and Work IAW Safety Basis"
ORDERS	DOE Order 414.1, <i>Quality Assurance</i>	DOE Order 420.1B, <i>Facility Safety</i> DOE Order 425.1C, <i>Startup and Restart of Nuclear Facilities</i> DOE Order 433.1B, <i>Conduct of Maintenance</i> DOE Order 426.2, <i>Conduct of Training</i> DOE Order 422.1, <i>Conduct of Operations</i> DOE Order 5480.30, <i>Nuclear Reactor Safety Design Criteria</i> DOE Manual 442.1-1, <i>Differing Professional Opinions Manual</i>
GUIDES AND STANDARDS	DOE Guide 414.1-1B, <i>Management and Independent Assessment</i> DOE Guide 414.1-2A, <i>Quality Assurance Management System</i> DOE Guide 414.1-3, <i>Suspect/Counterfeit Items</i> DOE Guide 414.1-4, <i>Safety Software</i> DOE Guide 414.1-5, <i>Corrective Action Program</i> DOE Standard 1150, <i>Quality Assurance</i> DOE Standard 1073, <i>Configuration Management</i> DOE Standard 1172, <i>Safety Software Quality Assurance</i>	DOE Guide 420.1-1, <i>Facility Safety Design</i> DOE Guide 420.1-2, <i>Natural Phenomena Hazards</i> DOE Guide 420.1-3, <i>Fire Protection</i> DOE Guide 421.1-1, <i>Criticality Safety</i> DOE Guide 421.1-2, <i>Safety Analysis</i> DOE Guide 424.1, <i>Unreviewed Safety Questions</i> DOE Standard 1020, <i>Natural Phenomena Hazards</i> DOE Standard 1027, <i>Hazard Categorization</i> DOE Standard 1104, <i>Safety Analysis Review</i> DOE Standard 1189, <i>Safety in Design</i> DOE Standard 3006, <i>Operational Readiness Reviews</i> DOE Standard 3009, <i>Safety Analysis Preparation</i>



Nuclear Safety Policy

SEN 35-91



Top Level Policy Statement

- *It is the policy of the Department of Energy (DOE) that the general public be protected, such that no individual bears significant additional risk to health and safety from the operation of a DOE nuclear facility above the risks to which members of the general population are normally exposed.*
- *The purpose of this document is to establish the basic nuclear safety policy from which specific safety Rules, Orders, Standards, and other requirements shall follow.*
- *DOE facilities will be designed, constructed, operated, and decommissioned to assure the protection of the public, workers, and the environment.*



Nuclear Safety Policy SEN 35-91



Key Elements for Implementing the Policy

- Management
- Technical Competence
- Safety Goals
- Independent Oversight
- Safety Culture

Safety Goals

- Qualitative
- Quantitative Aiming Points



Nuclear Safety Policy

SEN 35-91



Current Draft Update in Policy

- Minor Clarifications
- Reflect DOE's Use of Integrated Safety Management
- Address Use of Quantitative Risk Assessments



10 CFR 830 Nuclear Safety Requirements



- Subpart A, *Quality Assurance Requirements*
- Subpart B, *Safety Basis Requirements*
 - Hazard Category 1,2, and 3
 - Documented Safety Analysis
 - Change Control



DOE Order 420.1B Facility Safety



Address Five Important Facility Safety Areas

- Nuclear Safety and Explosive Safety Design
- Fire Protection
- Natural Phenomena
- Criticality Safety
- System Engineering (Configuration Management)

Developed, Controlled, and Implemented per DOE Order 251.1C



Implementing Guides and Standards



Example of Key Standards and Guides

- DOE Standard 1027 – Facility Hazard Categorization
- DOE Standards 3009 and 1189 – Safety Analysis Development
- DOE Guide 420.1-1 – Facility Safety Design

Standards Developed per DOE Order 252.1

- Can be Found at: <https://www.directives.doe.gov/>

Guides Developed per DOE Order 251.1C

- Can be Found at: <http://hss.doe.gov/nuclearsafety/ns/techstds/>



Nuclear Facility Management and Operation



- Most DOE nuclear facilities operate under a Government Owned Contractor Operated (GOCO) framework
- DOE contractors are responsible for developing and maintaining safety basis documents and operating procedures
- DOE line management reviews and approves the facility safety basis, performs a readiness review prior to the nuclear facility operation, and subsequent operational oversight.
- Office of Health, Safety and Security – Nuclear Safety Roles
 - Nuclear Safety Directives and Policy Development and Implementation Support
 - Independent Oversight and Enforcement



Information Sources/Contact



Information

- Overview of DOE Nuclear Safety: <http://hss.doe.gov/nsrf/>
- Office of Health, Safety and Security: <http://www.hss.doe.gov/>
- U.S. Department of Energy: <http://energy.gov/>

Contact

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