

*EFCOG Safety Analysis Working Group
Workshop 2000
Keynote*



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Introduction & Topics

- **Personal Background/Perspectives on Safety**
- **Historical Perspectives on Safety Philosophy**
 - **Evolving from Expert- to Standards-based**
 - **Authorization Basis Requirements/Standards**
- **Integrated Safety Management (ISM) Journey**
 - **Where are we?**
 - **Management Challenges for both DOE and Contractors**
 - **How does safety analysis fit in and what are the major challenges**
- **Path Ahead - NNSA Defense Programs Perspectives**
 - **Feds Roles and responsibilities**
 - **Clear expectations**
 - **Realignment to improve safety management**

Personal Background and Safety Perspectives

- **Currently Principal Deputy for DP Operations, initiated by S-1 LPSO assignment to improve line-accountability, responsibility, and communication between the Program Offices and field elements**
- **Special Assistant to S-1 for Arms Control, Nonproliferation, and Defense Programs**
- **A staff member of the House Arms Services Committee**
 - **Creation of DNFSB**
 - **“Drell Panel”**
- **Believe in an holistic, systematic approach to safety**
 - **Everyone is responsible and accountable for safety**
 - **Safety is not achieved by a stack of papers, but by real commitment by everyone involved (managers, operators, designers, analysts, reviewers, etc.)**

Personal Background and Safety Perspectives (cont.)

- **Strong leadership and robust, consistent processes are required**
- **Safety analysis should also be more than just documentation of analysis**
 - **the process must include all the affected parties to make the product useful, not just mere compliance document**
 - **Hazards must be identified and evaluated systematically and thoroughly**
 - **Controls must be established and implemented (hazard elimination at the process level **prevention vs mitigation** emphasized)**
 - **Safety management programs must be institutionalized at all levels and must be applied appropriately at each specific facility/operation**
 - **All required or agreed-upon commitments must be followed**
 - **Safety has to be built into design (Preliminary hazard analysis, PSAR)**

Historical Perspectives on Safety Philosophy

- **Atomic Energy Act of 1954 - the first Congressional directive to establish a rule, regulation, or order to protect the public**
- **Price-Anderson Act amendments to AEA in 1988**
 - Prior to this, partially met its statutory obligations by issuing DOE safety Orders
 - Orders not necessarily mandatory/contract stipulations
 - Since PAAA, DOE issued 2 regulations (i.e., radiation protection, quality assurance)
 - A lack of enforcement on the orders
- **DNFSB Influence**
 - Recommendation 90-2 on adequacy of DOE safety standards
 - Recommendation 92-5 on graded approach for mission changes
 - Recommendation 93-1 on nuclear safety requirements for nuclear explosive operations

Historical Perspectives on Safety Philosophy (cont.)

- Recommendation 94-5 to integrate all applicable safety requirements into a clear, coherent, and consistent standards-based nuclear safety program
- Recommendation 95-2 to systematically integrate safety into management and work practices at all levels
- **Safety Authorization Basis (AB) for nuclear facilities requirements: DOE Orders 5480.23 (SAR), .22(TSR), and .21(USQ) issued in 92-93**
 - NRC reactor based model; DP Safety Survey revealed most DOE facilities pose much less potential consequences from severe accidents compared to a commercial reactor
 - DOE standards and guidance to facilitate the safety analysis process and to provide expectations including graded approach (e.g., STD-1027, STD-3009)
 - Standardized accident source term (DOE-Handbook-3010)
 - TSR Example documents for common controls
 - Several Training Courses developed and given (e.g., SAR, TSR, USQ)

Integrated Safety Management (ISM) Journey

- **ISM systems being institutionalized**
 - Phase I and II verifications on going
 - S-1 mandate by September 2000 to complete Phase II
- **Is this a mere paper exercise or real thing?**
 - After Phase II, can we say our facilities are safe?
 - Systems approach to lay out the framework and processes
 - Principles are sound and the five major functions make sense
 - Has to be fully implemented at all levels in facilities
- **Management Challenges/Tasks**
 - Strong management leadership and Accountability
 - Commitment (i.e., resources, robust processes) and follow-up
 - Technical competence and integrity
 - Cooperation from top to bottom

Integrated Safety Management (ISM) Journey (cont.)

- **What is the role of Safety Analysis and Authorization Basis?**
 - It is a core function of ISM (analyze hazard and identification and implementation of controls) and safety assurance goal
 - For nuclear facilities and operations, AB requirements are clear by the existing orders and standards (5480.21, -.22, -23, & STD-3009) in terms of acceptable analytical approach, control strategy and specifications, configuration control, safety management program commitment, and others
 - But consistent with ISM, need to apply graded approach by considering facility and system/process complexity, anticipated mission change, etc.
 - Category 3 nuclear facilities need a better tailoring to minimize undue costs
 - For non-nuclear hazardous operations, need a better handle on what should be done in terms of hazard analysis, controls, and documentation requirements

Path Ahead - NNSA Defense Programs Perspectives

- **What is the DP Corporate currently doing to expedite quality implementation of ISMS and AB**
 - DP-1 ISM status call; received some input from the field, but not much on AB
 - DP-3 AB status memo out for the field input to update on the progress; to determine resource needs; and to identify any need for additional guidance or clarification on expectations
 - Corporate level balanced priority needs to be established based on business and safety factors
 - DP-3 staffing requirements input from Area/Site Offices
 - Endorses a rigorous self-assessment by contractors such as the recent LANL assessment on AB performance (strong leadership from local DOE, Los Alamos Area Office)
 - Responding to the March 2 DNFSB letter on AB self assessment

Path Ahead - NNSA Defense Programs Perspectives (cont.)

- **DP's plan for organizational realignment**
 - **To improve and clearly define federal roles, responsibilities, and accountability**
 - **To streamline and align HQ and field functions and to eliminate duplicative functions**
 - **To align budget process and organizational flow down (for both main programs and facilities/infrastructures)**
 - **To strengthen technical capabilities at Area/Site Offices to perform their delegated functions effectively (timely and competently)**
 - **To improve/streamline DP line ES&H oversight, policy & standards, and mentoring/support functions**
 - **Consolidate technical resources into an “Center of Excellence” matrix support**
 - **To improve project management and its oversight**

Path Ahead - NNSA Defense Programs Perspectives (cont.)

- **What would this realignment plan achieve for AB implementation ?**
 - **Having a singular policy/standards office would provide consistent policy and expectations (one voice vs. multiple), increased efficiency, and champion required safety research or study (e.g., safety analysis codes)**
 - **A point of contact to any internal or external oversight organizations (e.g., DNFSB) on generic AB issues**
 - **Area/Site offices with necessary SME help from the matrix support group would be able to review AB documents in more timely basis with increased quality**
 - **Oversight of field performance would be done by one office**
 - **Lessons-learned captured more effectively**
 - **Resource allocation based on the corporate views (more balanced priorities and shared resources across the complex)**

Conclusions

- **Safety assurance is a continuing process**
- **ISMS is a management system which must be accepted as a core philosophy of operations which must be rigorously implemented**
- **Establishment of an appropriately grades AB for all operations is fundamental to successful ISM implementation**
- **Hazard and safety analysis is key component along with safety management programs**
 - **Safety analysis process must include, and be useful to, all affected parties**
 - **Safety analysis process needs to ensure facility & worker ownership**
 - **Review/approval process must be made more efficient**
 - **Must be appropriately tailored considering hazard types and levels, life cycle of the facility, etc.**

Conclusions (cont.)

- **DOE and Contractors must cooperate to achieve the same *end* goal**
- **We must maintain and improve technical resources and capabilities**
 - Need to retain experienced people and hire new people for the future
 - Improve sharing of resources
 - Share lessons-learned (both successes and failures)
 - Improve training tools
 - Improve engineering competencies in the Department
- **EFCOG Safety Analysis Working Group's effort**
 - DOE appreciates your efforts
 - In addition to the sharing of information from various sites, issues should be identified for resolution
 - Any suggestions to improve the dialog between you and DOE, especially on important generic issues, should be discussed further with the appropriate DOE POC at your site