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## **Department of Energy Safety Management In Energy, Science and Environment**

DNFSB Public Meeting

Bob Card

Under Secretary

October 21, 2003

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### **Historical Context**

- + The DOE of the 80's (and before) was in denial of its defense environmental responsibilities, liabilities and risks
  - This culminated in the FBI raid on Rocky Flats in 1989
- + The DOE of the 90's acknowledged the responsibilities and liabilities but didn't understand the risks and couldn't develop systems and processes for addressing them
- + The DNFSB was chartered in 1988 and became an effective agent for helping DOE understand risk priorities and safety systems for addressing them

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## **This is Not Your Father's DOE The President and Secretary Want, and Have Achieved, Game Changing Strategies**

- + Stemming from the leadership of the Board with Recommendation 94-1, and continuing to the present, DOE has:
  - Achieved spectacular progress toward public and worker risk reduction
  - Plus achieving record safety results
  - While engaged in some of the world's most hazardous work
- + This Administration has taken the issue of risk reduction and safety very seriously
  - Personal initiative of Secretary Abraham
  - Fully supported in President Bush's budget

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## **Game Changing Strategies (Cont.)**

- + This Administration has made the tough decisions to open up waste receiving sites
  - Yucca Mountain was selected and DOE is marching toward a December 2004 License application, two years earlier than estimated just two years ago
  - Savannah River has become a processing center and MOX has been fully funded
  - WIPP continues to achieve record throughput
  - All LLW repositories have remained open and on site disposal has been on schedule
- + This has safety and risk reduction benefits that far transcend DOE's in-house clean up mission

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## Examples of Progress

- + On track to reduce the cleanup date from 2070 to 2035, perhaps even as early as 2025
- + The result is a dramatic improvement in time weighted risk reduction for the public and workers
- + On track to reduce the budget by well over \$50 Billion from a baseline that was impossible to achieve on the old strategy
- + The result is more than \$1 Billion per year of funding for other risk reduction efforts from 2025 to 2070

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## EM Risk Reduction Examples

- + Will complete stabilization and packaging of all Pu metal, oxides and residues by mid 2005
  - Have de-inventoried metal and oxides from Rocky Flats and Mound
- + Will complete spent fuel removal from 8 of 10 basins by end of 2004
- + High level waste treatment is fully funded and on track and liquid waste volumes in Hanford have been reduced from millions of gallons to less than 40,000
- + Significant work scope has been slashed from the high level waste program for the same end product

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## **EM Risk Reduction Examples (Cont.)**

- + Major closure sites remain on track for a 2006 completion
- + Record amount of low level and transuranic waste have been safely removed from sites and disposed of in each of the last two years
- + For the first time, for two consecutive years the life cycle baseline of the EM program has not increased and the schedule has not expanded

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## **Game Changing Strategies Are Being Implemented Elsewhere In DOE**

**These will all have the effect of improving the Environment or Safety**

- + RW is committed to waste receipt in 2010
  - Goal to shave 20% from cost and more than a decade from the completion of initial consolidation
- + FE – FutureGEN – state of the art power and hydrogen from coal without CO<sub>2</sub>.
  - FE is also on the front lines to resolve the natural gas shortage and fill the SPR
- + EERE – A solid program to achieve a H<sub>2</sub> vehicle commercialization decision in 2015
- + NE – A new Gen IV Reactor in Idaho (and possibly a new Gen III+ start) appear within reach

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## Game Changing Performance and Initiatives (Cont.)

- + OETD – New electricity technology and policy capability for blackout analysis and mitigation
- + SC – Emerging renaissance in the physical sciences
  - Computational simulations, ITER, nanotechnology, genomics/proteomics and the new 20 Year Plan
  - Expected to result in breakthroughs in disease diagnosis and treatment and environmental protection
- + WT / Legacy management – new mission, new strategy
  - public lands management cost effective excellence

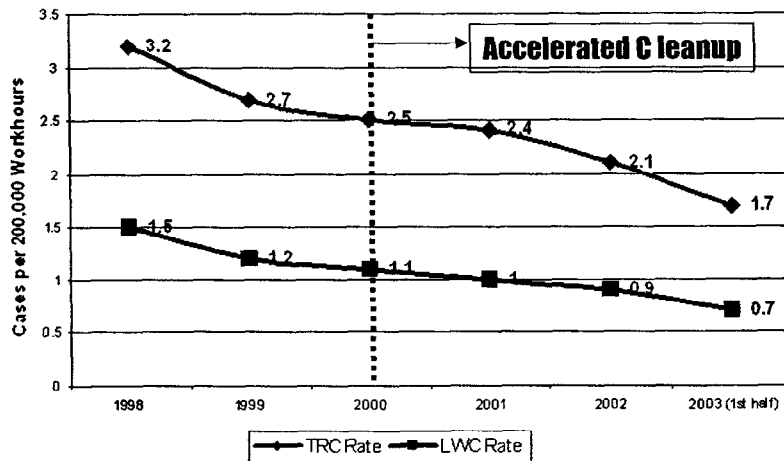
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## DOE-Wide OSHA Statistics Show Dramatic Improvements

### A 50% reduction in injury rates over the last 5 years

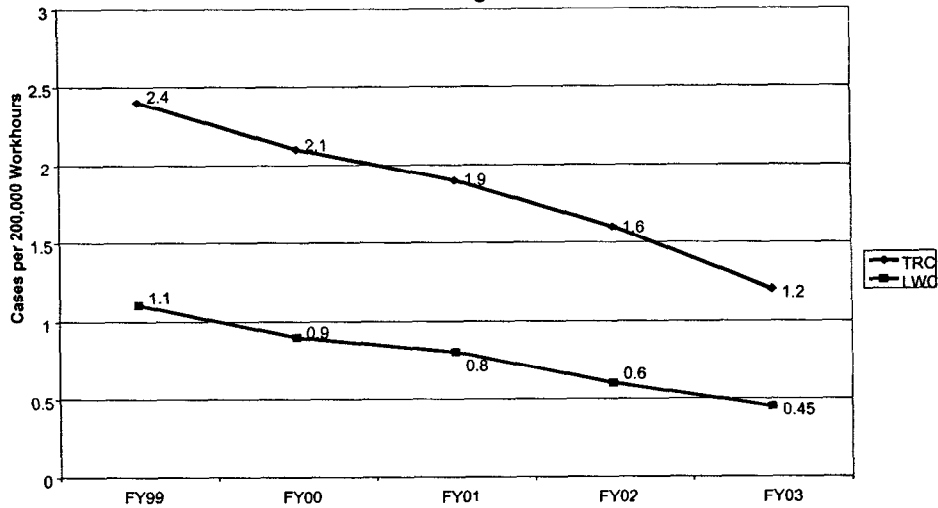
All DOE Total Recordable Case and Lost Workday Case Rates





## EM OSHA Statistics Show A 35 % Reduction Since the Beginning of Accelerated Cleanup

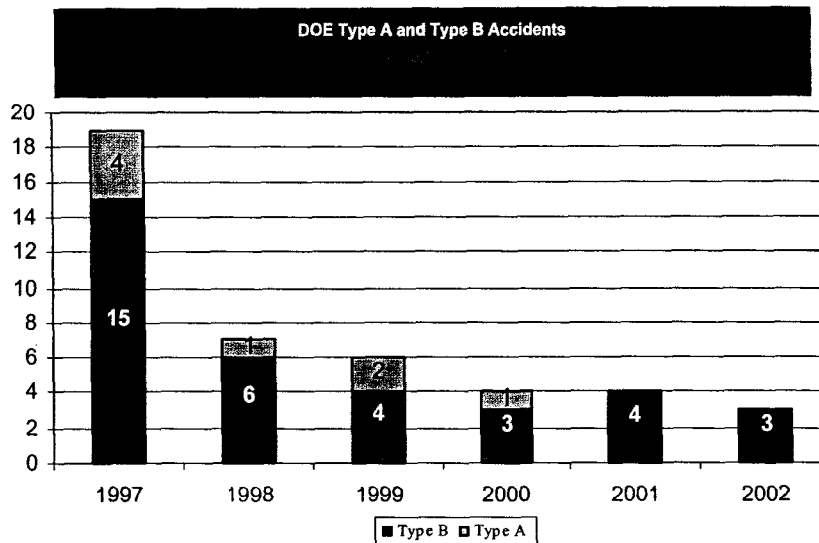
EM Average TRC and LWC Rates  
FY99 through FY03



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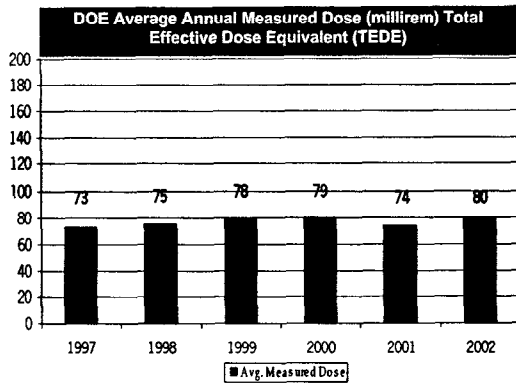
## DOE-Wide Type A and B Incident Rate Declining



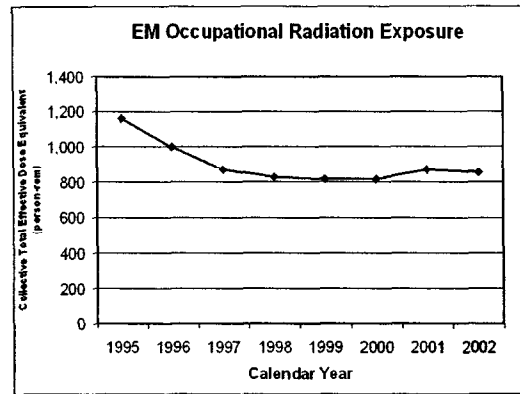
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## EM Has Held Total Radiation Exposure Nearly Stable While Dramatically Accelerating Work



**DOE**

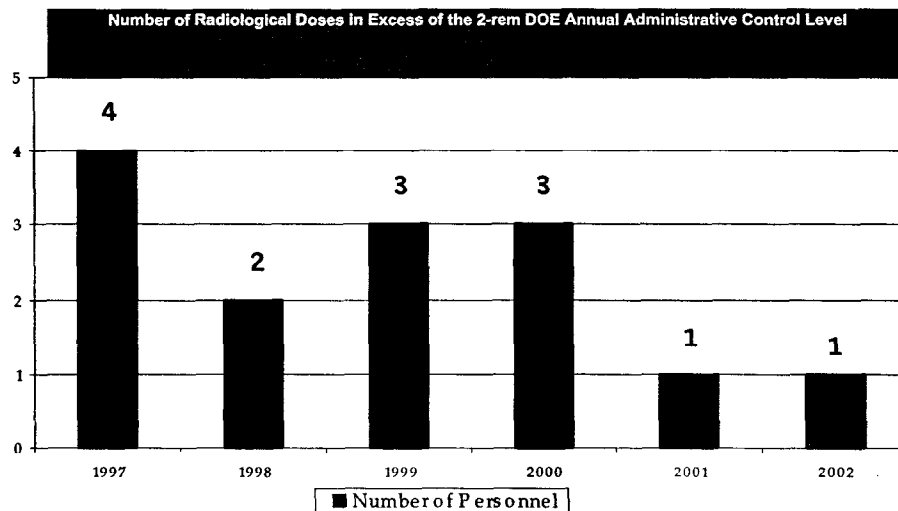


**EM**

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## Radiologic Doses in Excess of Administrative Control Limits are Declining



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## **How Did DOE Achieve This Breakthrough and What are It's Plans to Continue It?**

- + Foundations
  - President's Management Agenda
  - EM Top-to-Bottom review
  - Reyes Safety Systems Review
- + Bring ISM to DOE Headquarters
- + Leveraging DOE's outsourcing business model
- + Site / program vision for excellence and corresponding performance measures
- + Roles and responsibilities – Fed / contractor
- + Requirements prioritization and simplification

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## **DOE's Actions and Plans (Cont.)**

- + Work planning and budgeting
- + Management oversight and corrective actions
- + Corporate roles and responsibilities (OA, Under, etc.)
- + Corporate mission alignment

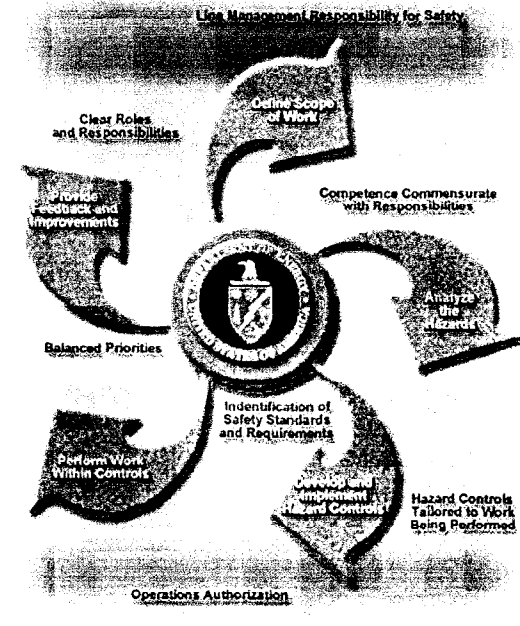
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## Bringing ISM to DOE Headquarters – Practicing What We Preach

- + Integrated Safety Management
- + 7 Guiding Principles
- + 5 Core Functions



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## ISM at Headquarters (Cont.)

- + “Safety” is applied to Safety, Safeguards, Environment and Shipping QA – Integrated Safety Management Principles are the Same
  - Now moving to just “Integrated Management” bringing in all other management aspects
- + Risk reduction and mission accomplishment are integral to safety performance
- + The safest work is that which is eliminated while still achieving the same mission objective
- + New emphasis – safety management of contract R&D and products – Hydrogen fuel and vehicle program

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## **Leveraging DOE's Outsourcing Business Model**

- + The Department was not capturing the benefits of its business model
- + DOE had successfully federalized its outsourced work force by removing contractor accountability for workforce management and direction
- + We are on a path to reconstruct and enforce this accountability to create a safer and more productive (risk reduction) work environment
- + We are increasing contractor turnover where performance standards are not being met

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## **Establishing a Vision for Each Site and Program**

- + Underway at all sites / programs
  - EM, RW, H2 and SPR most mature
  - As much work to be done as yet accomplished
- + Provides a master framework for project scoping, work planning, management strategy, acquisition strategy and requirements alignment
- + Provides a platform for identification and deletion of unnecessary work scope (scope with no risk)

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## Roles and Responsibilities

- + DOE and the contractors had overlapping, and therefore confusing roles and responsibilities
  - Example who is the “project manager”?
- + DOE role as the project developer and investor, with the Contractor role as the implementer
- + DOE manages the “contract” not the “contractor”
  - More systemic, less reactionary
  - Interventions by DOE signify a weakness in the contract or contractor that should be systemically corrected
- + Building respect for the line management chain of command within DOE

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## Requirements Prioritization and Simplification

- + DOE’s system tended to treat all requirements and information equally, masking that which is truly first order
- + DOE’s requirements infrastructure creates redundant or irrelevant, and sometimes conflicting requirements that also distract from the priority tasks
- + We have been and and continue to engage in programs for requirements streamlining and simplification to bring clarity and focus to our requirements set

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## **Work Planning and Budgeting**

- + DOE's goals and funding requirements were ill defined leading to many discontinuities in work flow, which are generally adverse to safety and risk reduction
- + The department has implemented a five-year budgeting cycle that combined with the site / program vision has lead to substantial improvement in work predictability
  - Coupled with detailed program plans for most sites
- + Long term planning has enabled identification of hazards associated with future work (e.g., RW, H2)
- + Implemented change control for scope adjustments
- + Incorporating D&D planning in facility design

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## **Management Oversight and Corrective Actions**

- + Executive safety and performance (risk reduction) oversight has been substantially improved
  - Every site has been personally visited (Ames Lab remaining)
  - Quarterly safety reviews with Under/Asst Secretaries of every site
  - Quarterly reviews of oversight findings and trends
  - Quarterly "Top 10" reviews of the most important / difficult projects
  - Real time reporting and reviews of key events
- + Information from reviews is evaluated for generic implications and root causes

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## Management Oversight and Corrective Actions (cont.)

- + Corrective actions are focused at the policy level
  - Work scope or planning concerns (e.g., 9/11 safety/security strategy)
  - DOE management or system weakness
  - Contract defects
    - » Contractor incentives, penalties and requirements
    - » Improved field enforcement for emerging issues
  - Contractor understanding and management capability
  - Lessons learned communication (e.g. LANL employee concerns)
  - Affect of proposed corrective actions on other system elements (unintended consequences)

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## Corporate Roles and Responsibilities

- + Implement new independent oversight model
  - Conversion of EH from independent oversight to safety and environment center of excellence and facilitator
- + Implement line management through the under secretary and line accountability of the programs through the program owning assistant secretary's
- + Clarify and simplify program-to-field chain of command
- + Increase planning and performance integration between key functions such as EM, NNSA, NE, RW and SC
- + Clarify the current and future scope of EM and other programs

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## **Corporate Mission Alignment In 2001, National Security Was Made DOE's Unifying Mission – It Remains So Today**

- + Primary Mission Elements
  - Economic security – clean, reliable, economic energy supply
  - National security
    - » Defense and Homeland Security
    - » Counter Terrorism and Critical Infrastructure Protection
- + Enabling Mission Elements
  - Environmental management of the primary mission elements
    - » Remediation
    - » Waste management
    - » Emissions management – water, air (carbon), soil, etc.

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## **Future Challenges While Much Has Been Accomplished, More Remains**

- + We know from commercial and DOE benchmarks that continued improvements in safety and productivity are achievable
- + Improvement in all the areas described above
- + Improvement in contractor management capability and capacity
- + Ensuring that Columbia-type issues don't arrive undetected through the "back door"

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## Future Challenges (Cont.)

- + Safety concerns continue
  - Keeping pace with work acceleration
  - Overconfidence (previously good sites have stumbled)
  - Near misses (esp., electrical, hoisting/rigging, lockout-tagout)
  - Indicators of systemic deficiencies (financial, security, property, etc.) – discovering hidden erosion of the safety infrastructure
  - Shipping QA
  - Worker transition management
  - QA systems development and implementation
  - Improved QA for new construction
  - Improved indicators for leading indicators of safety
  - Employee concerns program

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## The Next Plateau

- + DOE looks forward to building on its safety partnership with the DNFSB to help it achieve the next plateau in safety and risk reduction.
  - Further expedite public and worker risk reduction while achieving new safety benchmarks
  - Decrease risk by discovering and eliminating unnecessary scope from the work
  - Clarify and streamline requirements to make the most important of them more prominent and visible
  - Identify issues and controls at the highest and most systematic levels for maximum leverage in corrective actions

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## Summary

- + DOE is recovering from many safety and environmental challenges of its past
- + DOE and contractor had and have bright and capable workers
  - The systems we created were the problem, not the workers
- + Safety and performance is improving
- + We are not satisfied and many opportunities for improvement remain