BROOKHAVEN NATIONAL LABORATORY

"BNL has new management systems, but - is the work done more safely?"

(Revised) Presentation to BSA Board

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December 1, 2000

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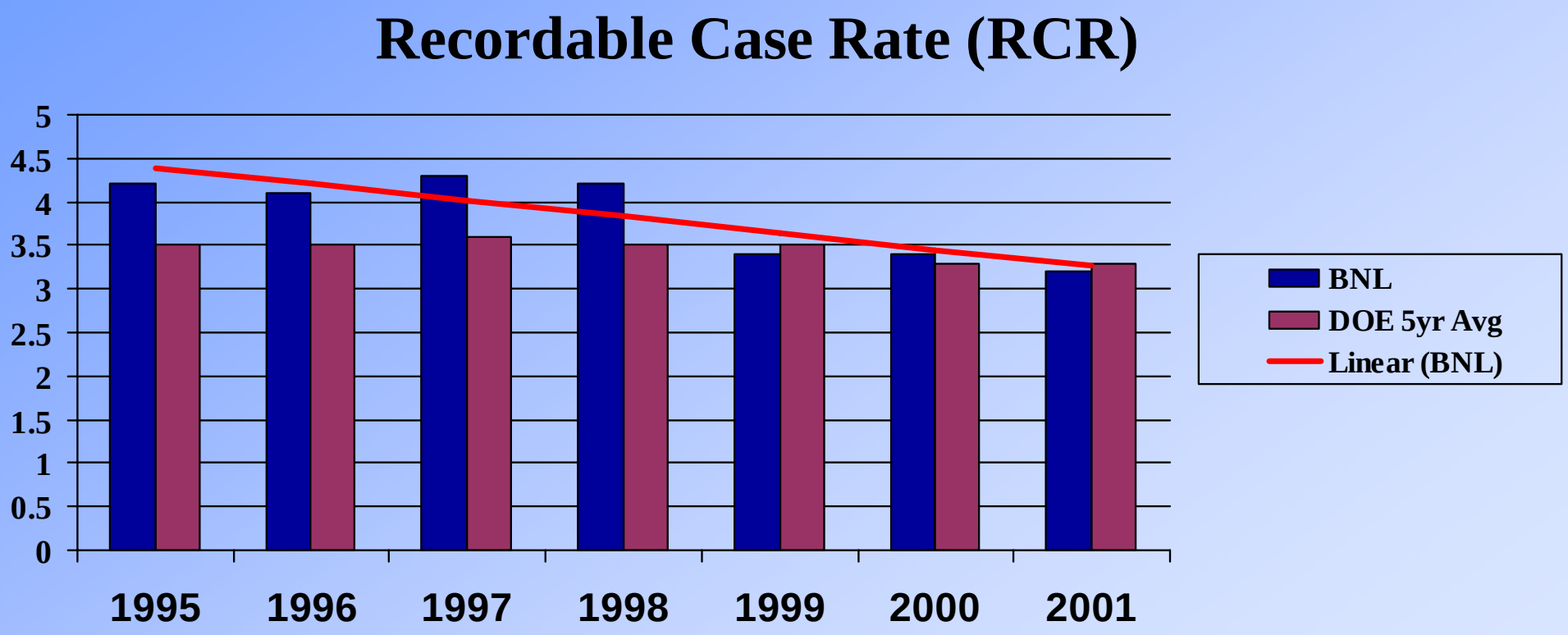
BROOKHAVEN NATIONAL LABORATORY

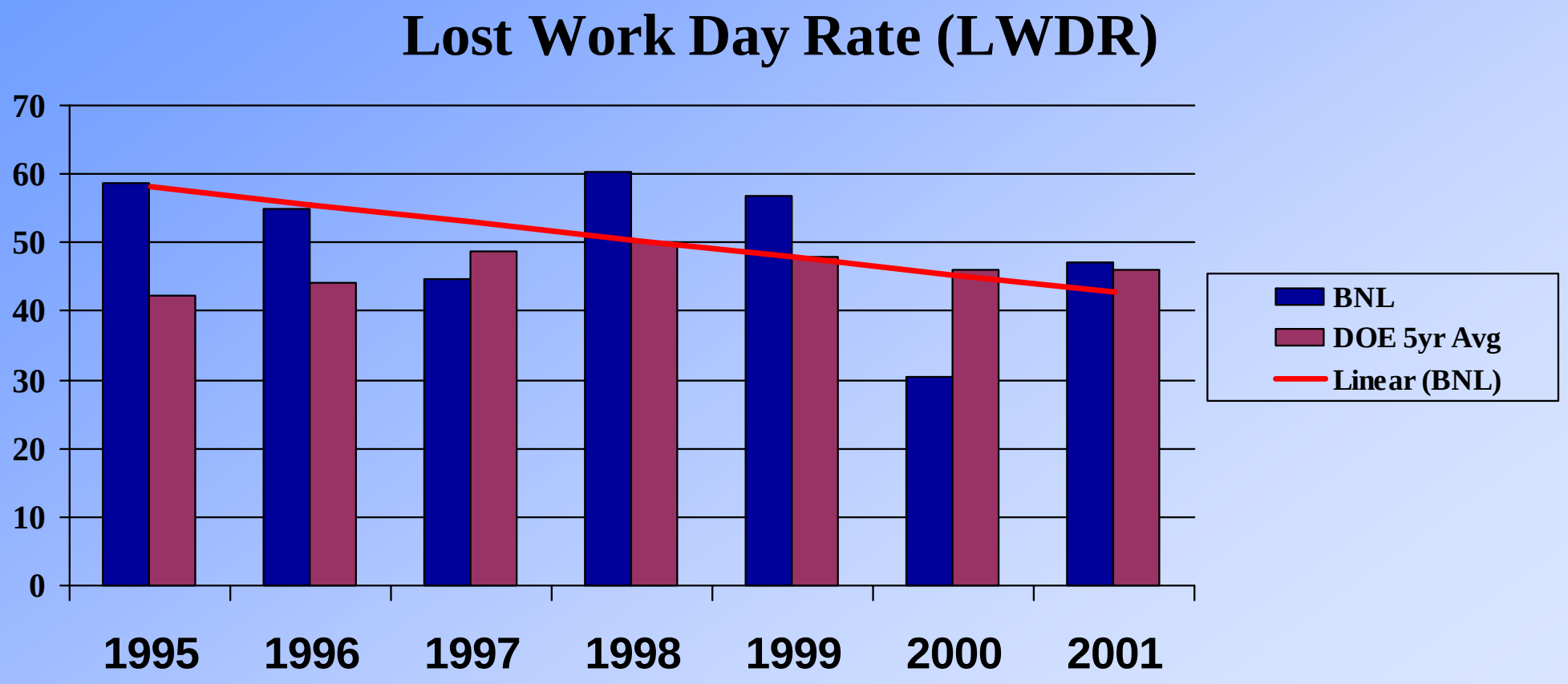
How to demonstrate reality in Safety?

- Straightforward answer to your question is an unequivocal “YES!”
- Throughout the business world standardized safety statistics are gathered and displayed.
  - They are demanded by our contract
    - Reported monthly
  - Some were considered in Contract “Off-Ramp” Decision
  - Some are performance on which we earn fee (or not)
- All are trending in the favorable direction

Safety Accomplishments



Safety Accomplishments



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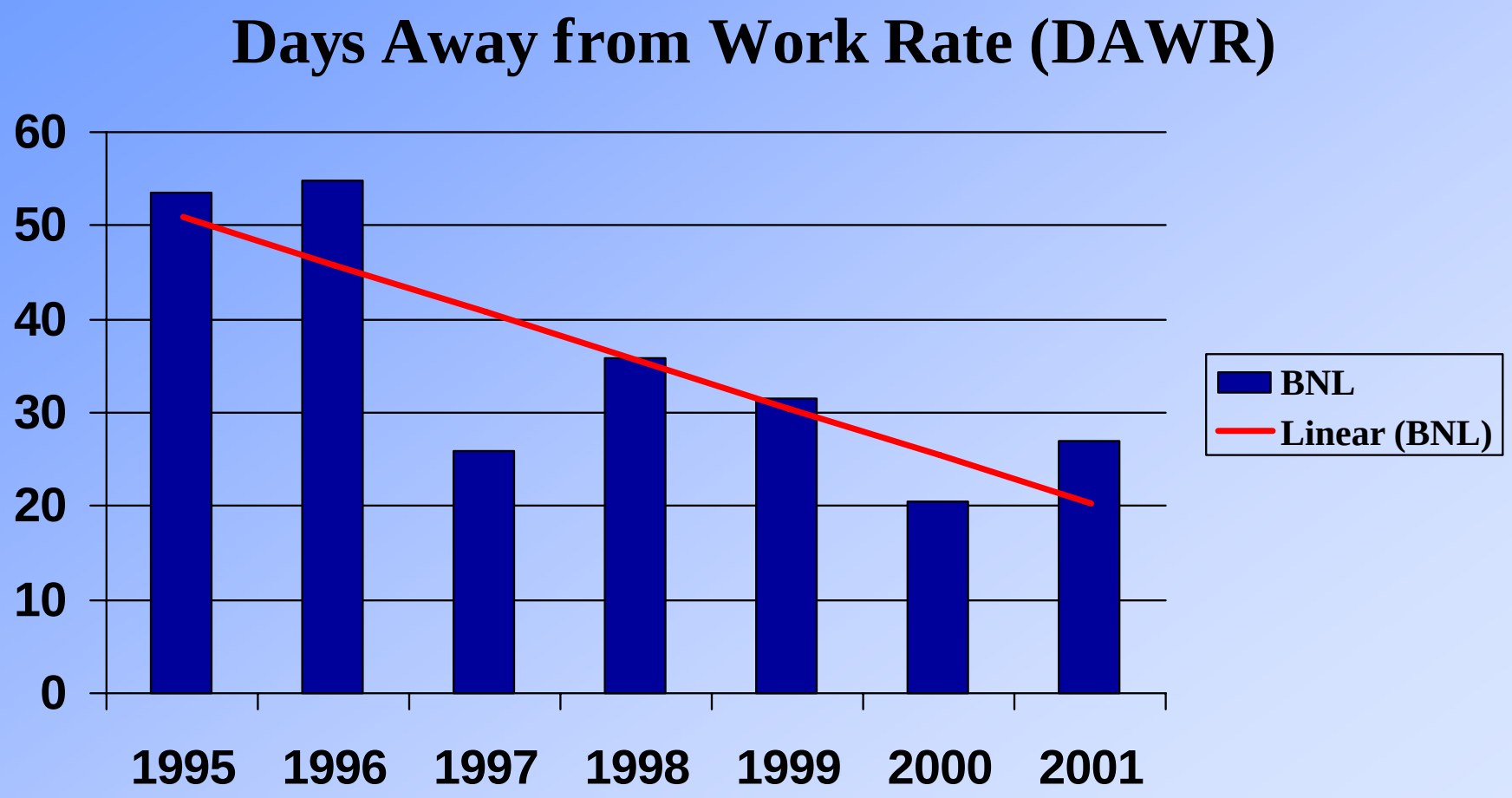
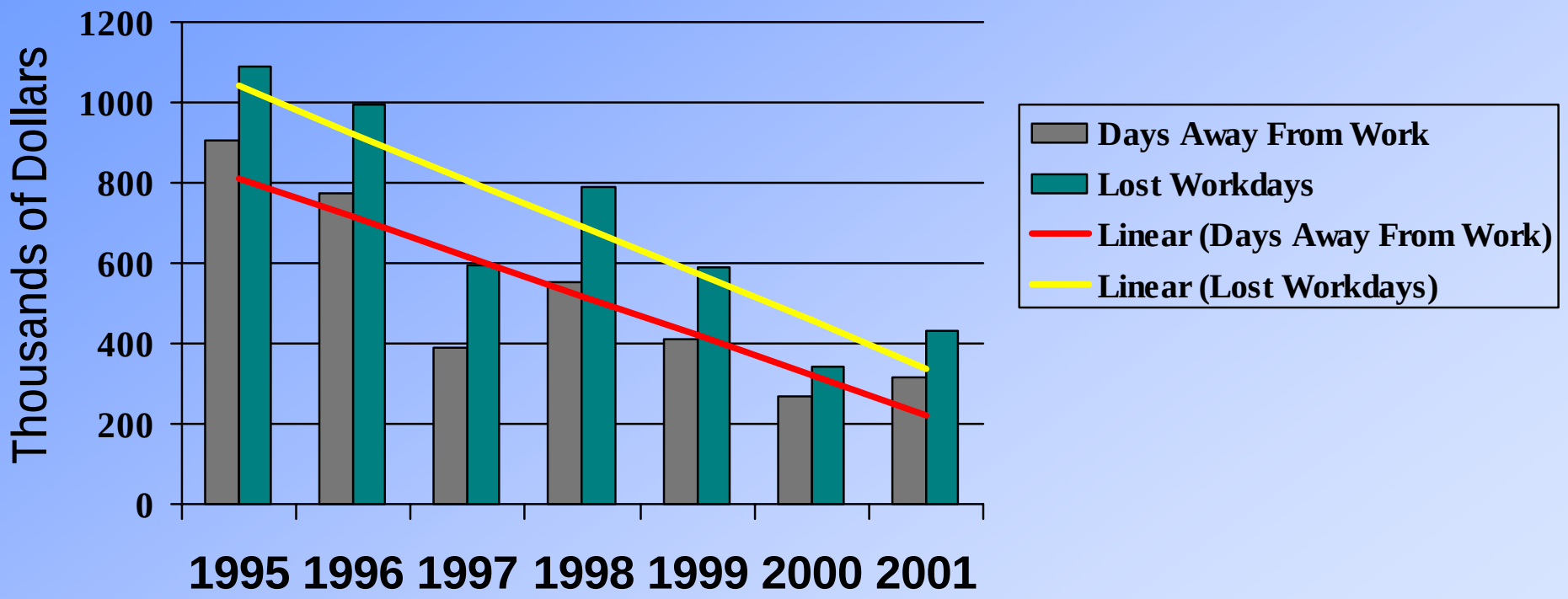


Safety Accomplishments

Cost Savings



Note: 1) Numbers depict only direct costs. Indirect costs are often many times the direct.

2) Each lost workday costs BNL approximately $450. Restricted workdays are usually half that ($225).

What is reality in Safety Reporting?

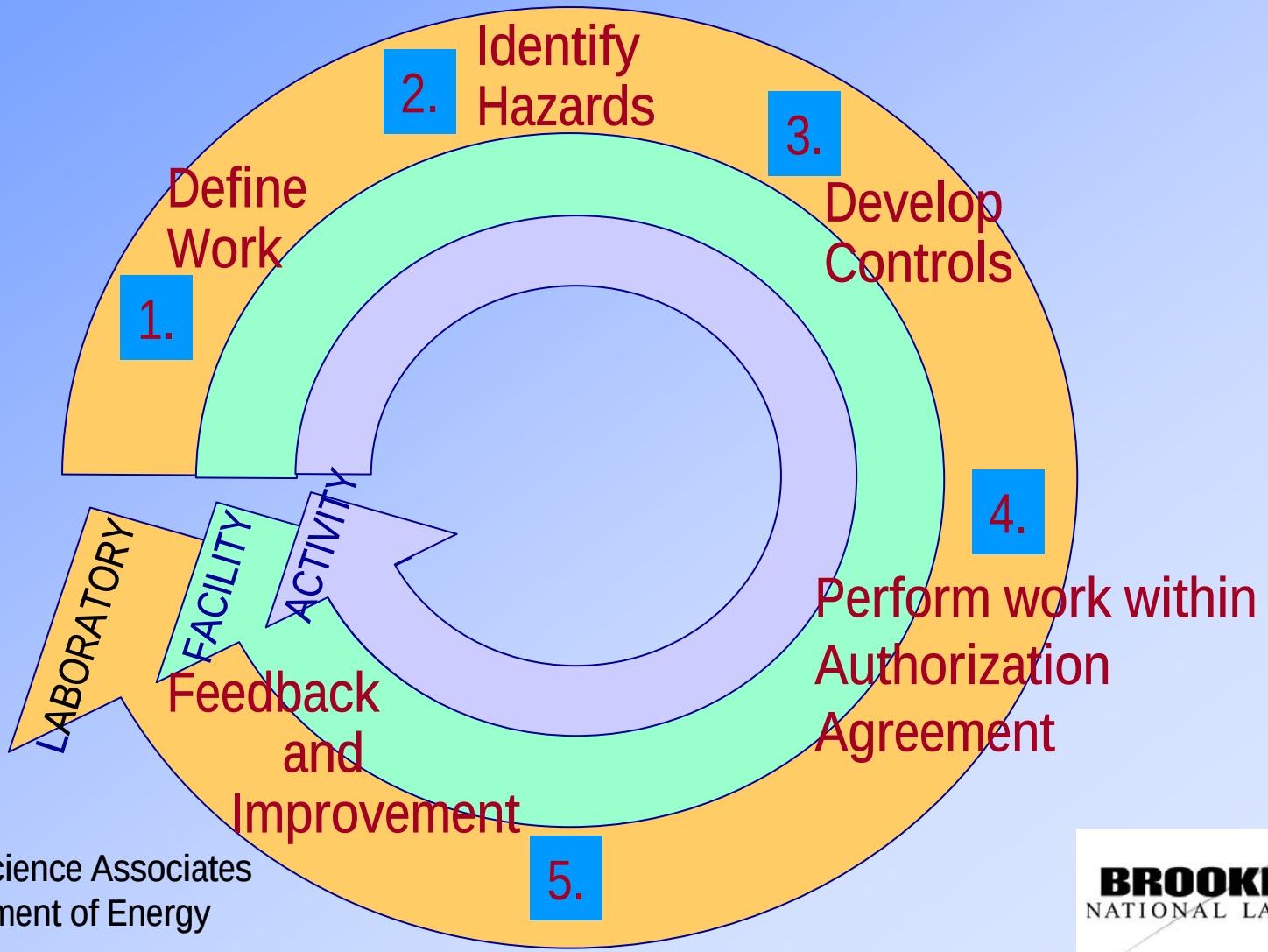
- "Well, Nobody got hurt yesterday, so we must be doing the right things for safety!"

- THAT'S WRONG !
  - The absence of any negative results does not prove the positive.

- So - there must be more subtle factors involved in the answer to your question.

Integrated Safety Management System

5 Core Functions



Achieving Real Gains in Safety

- The three Core Functions critical to safety are:
  - "Identify the hazards"
  - "Develop / Implement appropriate controls"
  - "Perform work within the authorization"

- Solution to safety is:
  - Make it easy to come to the "right answers" on all three of the above.
  - Best - make it almost impossible to get them wrong!

- Path to lasting safety gains is through risk reduction

Achieving Real Gains in Safety

- How to ensure “right answers” on these three functions?
  - Provide standardized, proven-safe procedures that are understood and used site-wide
    - Experimental Safety Review
    - Work Control
      - Hazards Identification Checklists
      - Training Requirements
      - Formal Start Work authorization
    - Lock-out/Tag-out (energy source isolation)
    - Stop Work procedure
    - Identification of significant environmental aspects via ISO 14001
    - Process Evaluations
    -
    -

Achieving Real Gains in Safety

- Remove or Reduce the Risk
  - Remove hazards
  - Remove or reduce wastes / prevent generation
  - Remove threats to environment

Know and control the hazards that remain

- Chemical Management System
- Facility Use Agreements
- Radiological Control Program upgrades
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-
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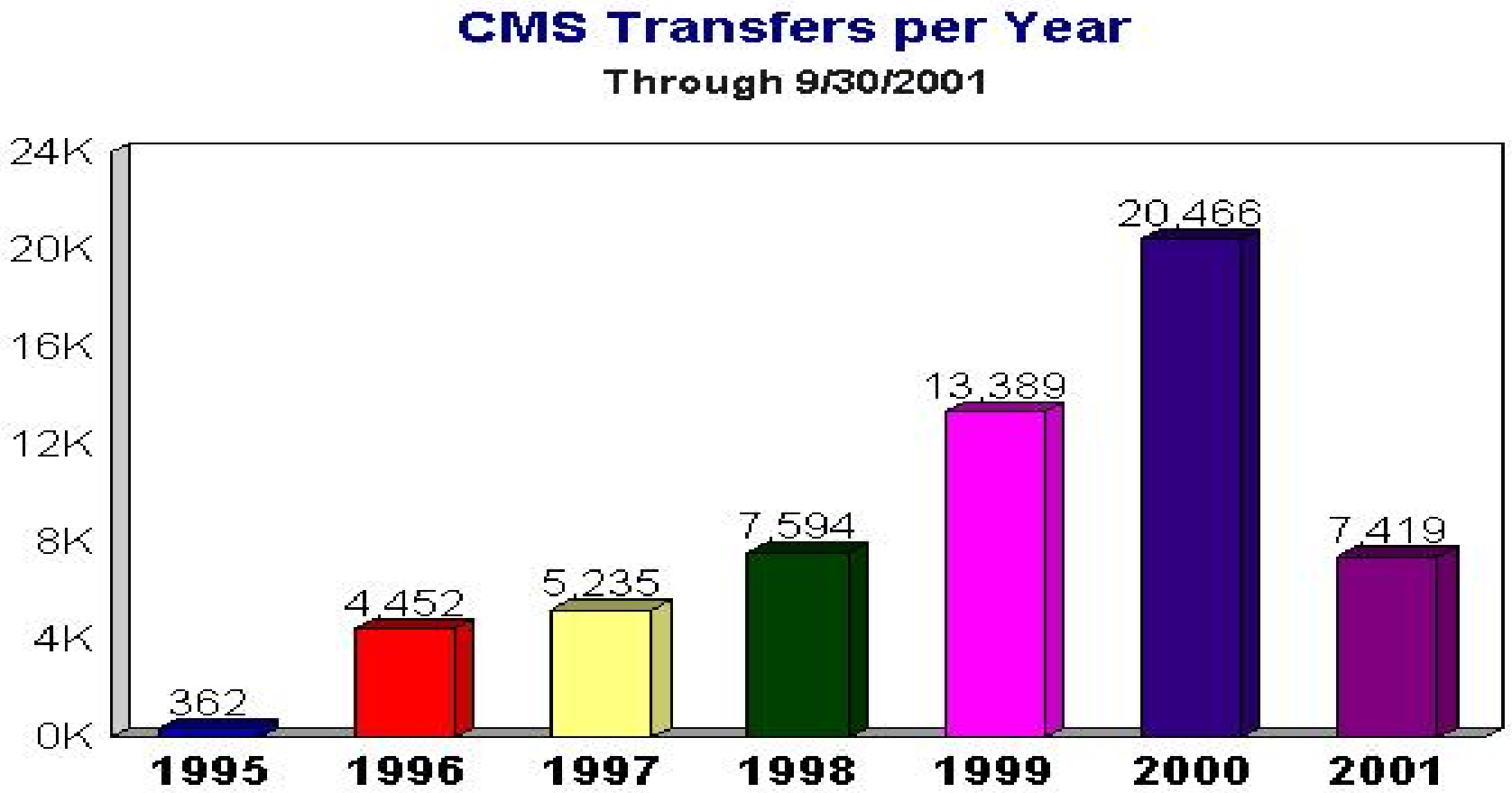
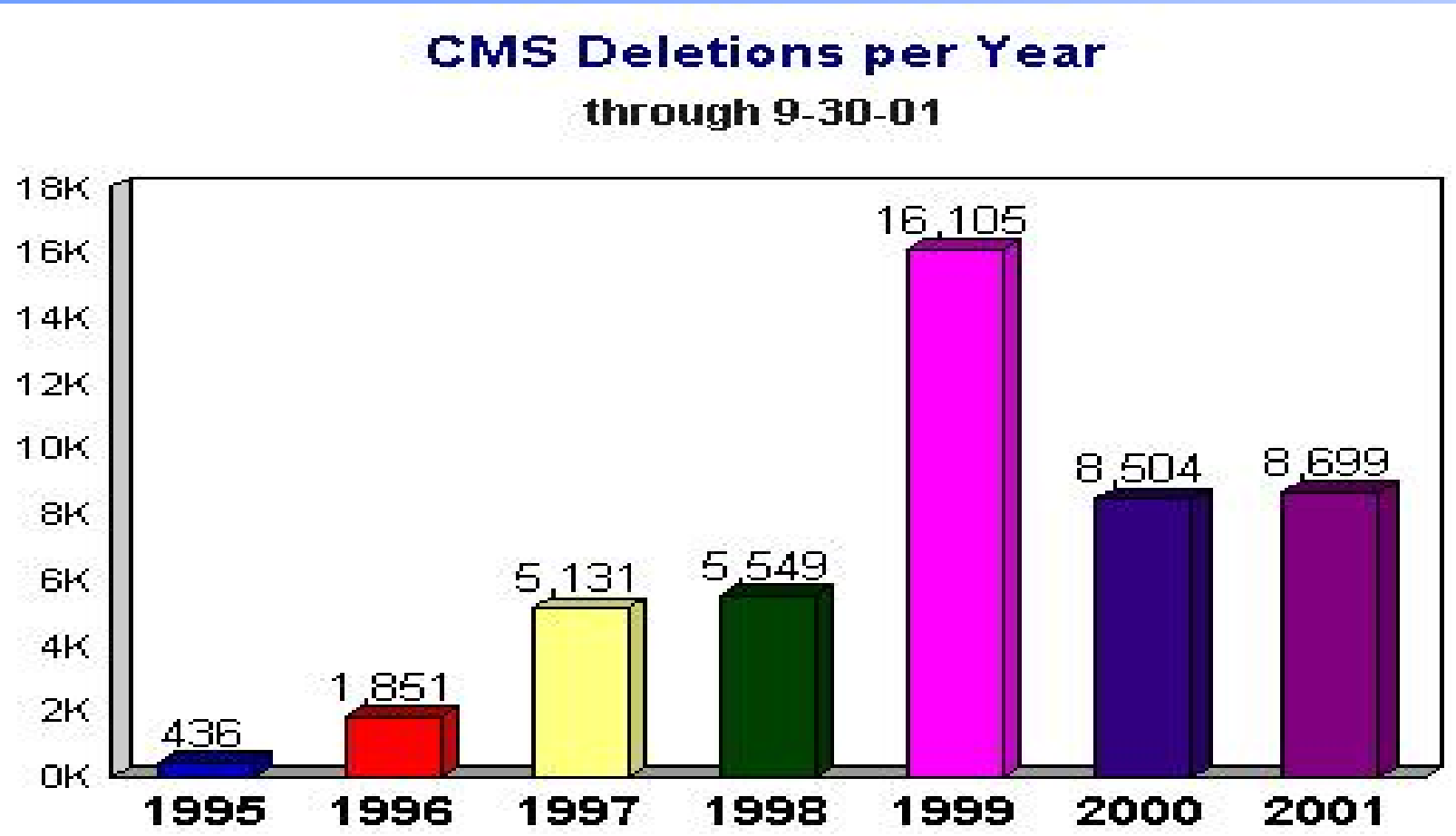
CMS Statistics

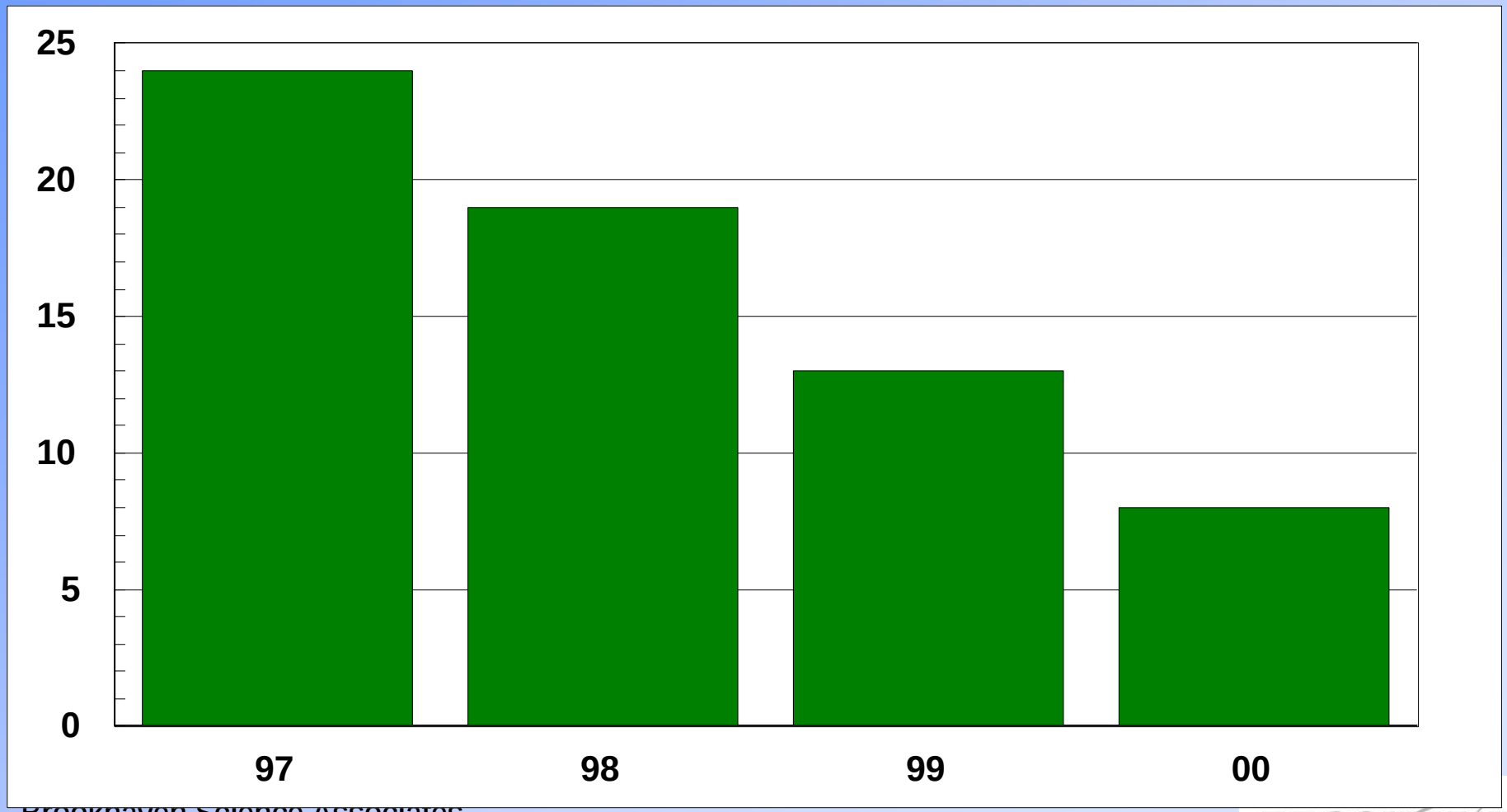


CMS Statistics



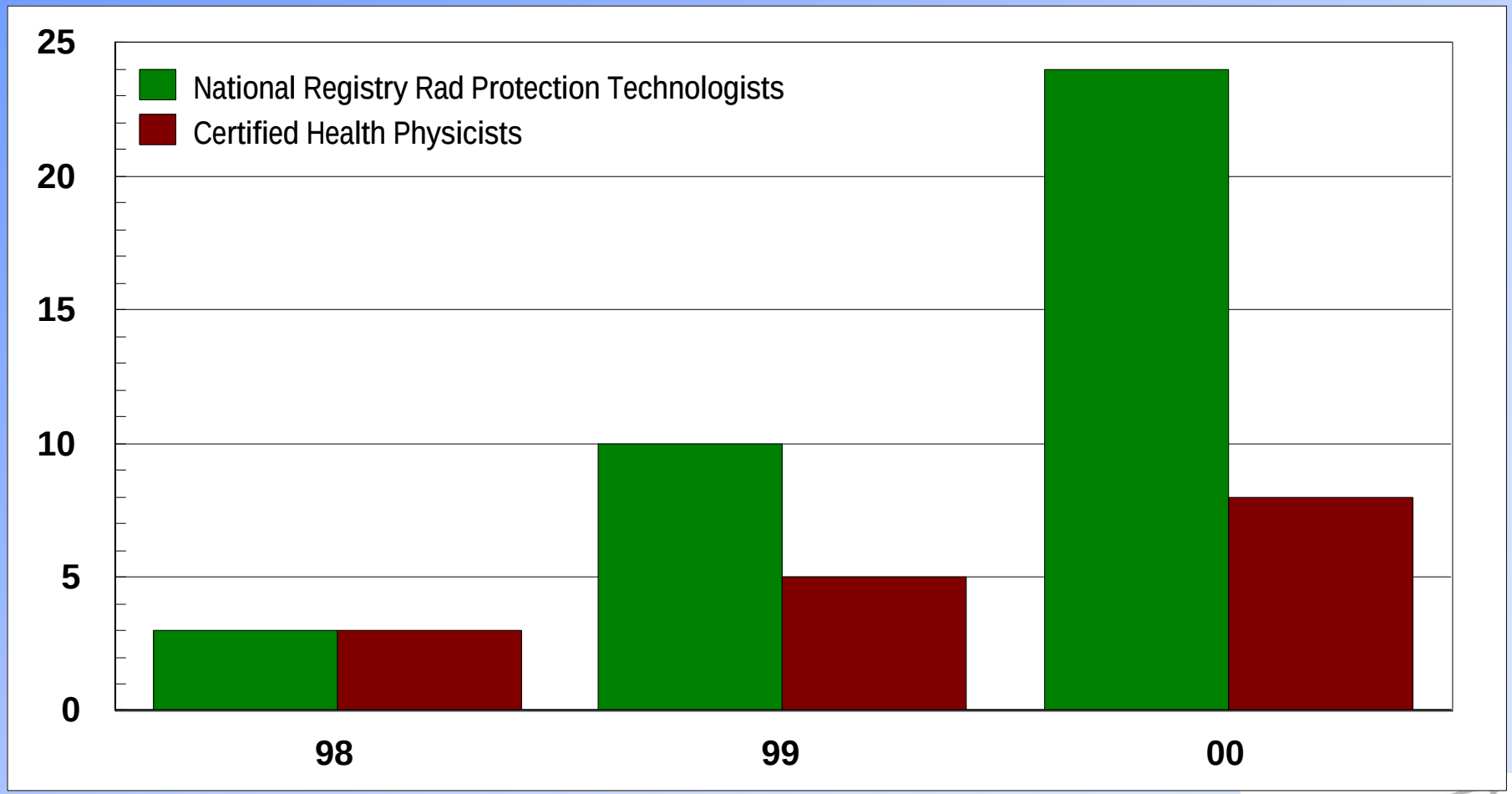
Radiological Control Results

Skin and Clothing Contaminations



Radiological Control Results

Improving Staff Technical Expertise



Pollution Prevention (P2)

Return on Investment Program

- EM and OH funds budgeted for P2 projects ($113k FY01)
- 28 proposals submitted
  - Reduce waste
  - Reduce environmental risks
- Annual costs savings for FY99 projects = $1,650,000and for FY00 = $2,280,000
- *BNL Wins 2 Nat'l P2 Awards*
  - *Process Evaluation Project*
  - *EMS Principles Leading Change*
  - *Runner Up: HFBR Stabilization*

✓ FUNDED in FY00

- Photo waste segregation
- Rad waste segregation*
- Helium recovery at MRI*
- DNA sizing using non rad methods*
- Tritium Exit signs

✓ FUNDED in FY01

- Retrofit hydraulic hoses
- Air Compressor condensate
- Minimize use of P-32*
- X-Ray Film Processor OMC
- Xenon Pressure Cell*
- Supercrit Fluid Chromatograph*
- Electric Vehicle Pilot

Since 1993

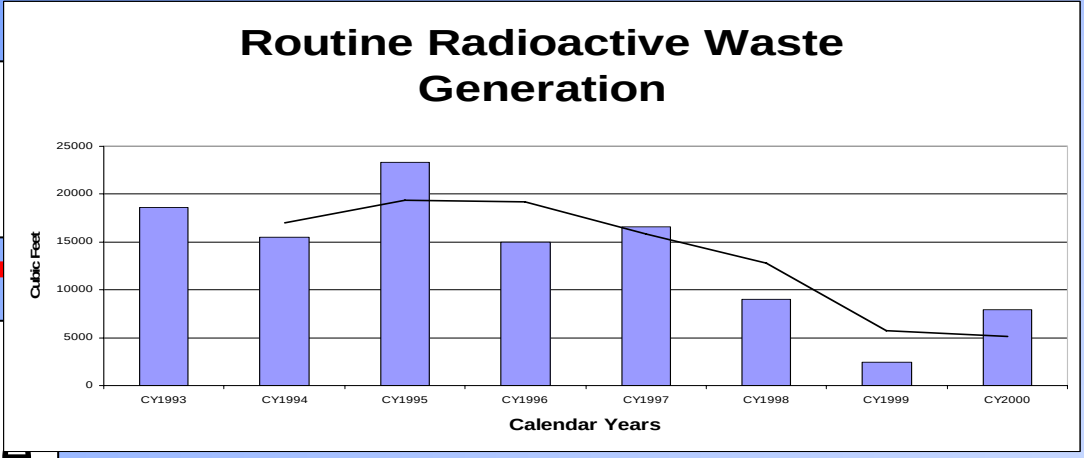
- Routine Hazardous Waste Generation Down 80%
  - 80 Tons –16 Tons
- Routine Mixed Waste Generation Down 79%
  - 6.6 cubic meters -1.2 cubic meters
- Routine Rad Waste Generation Down 87%
  - 660 cubic meters to 69 cubic meters

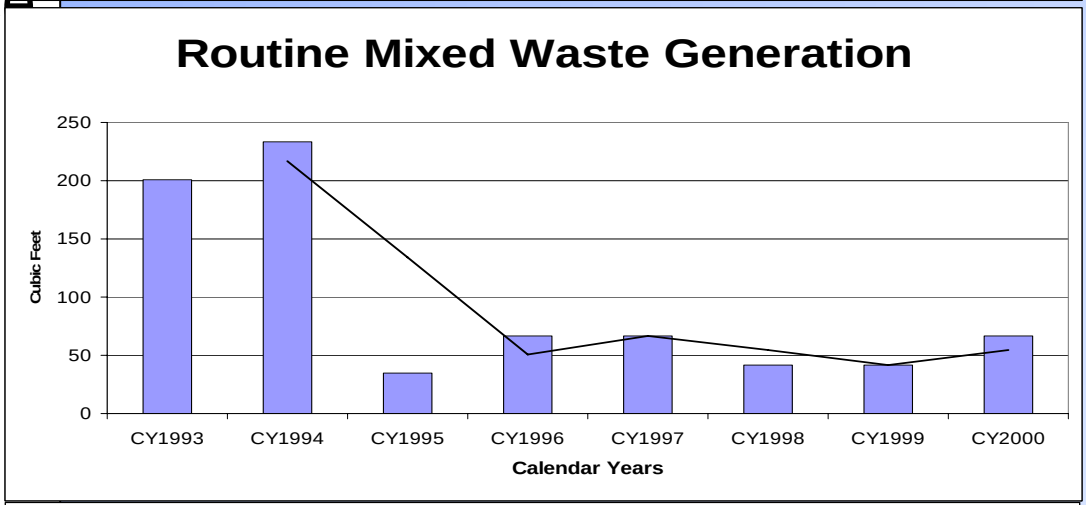
Performance: Waste

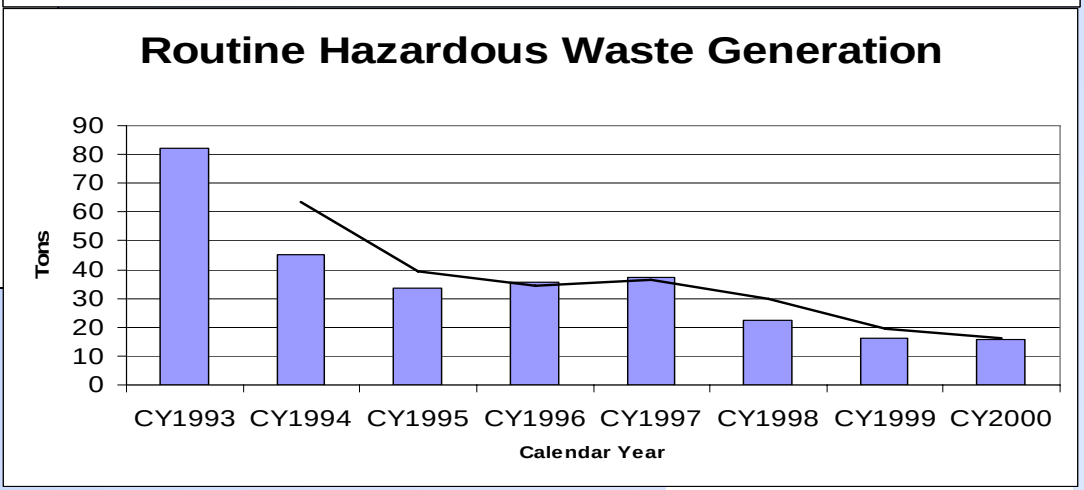
Significant Reductions in Waste from Routine Operations* (sinc 1992)

- Radioactive down 57%
- Mixed down 67%
- Hazardous down 81%

**Routine operations include all on-going processes and research activities*







Life Science EMS FY01 Objectives and Targets - Disposition Excess Materials

- Biology
  - 1200 barcoded legacy chemicals plus ~1000 additional non-barcoded were disposed of in 463 (~2300lbs)
  - 7 Rad areas cleaned out, surveyed and deposted.
  - 70 Chemicals transferred to new owners
- Medical
  - 1200 lbs of legacy waste disposed of.
  - 400 Lbs Rad Animal Carcasses.
  - 5 Rad areas cleaned out, surveyed and deposted.
  - In progress: Outside contractor to clean dilution and carcinogen rooms including hoods and Bin CC in basement ETA mid-Oct, 01.

Industrial Hygiene Program
Chemical Hazards Working Group

- 37% of CY 2000 LS Tier I findings related to improper chemical management (storage, labeling, procurement)
  - Team in place
  - Problems
    - lack of awareness, ineffective training & dissemination, little PI involvement, lack of D&D procedures, lack of good tracking tool
  - Possible Solutions (need Mgmt Support)
    - Improve communications between Tier I Team and staff
    - Develop SBMS Subject area for Tier I and for D&D
    - Newsletter
    - Develop better follow up mechanisms