Criticality Safety Officers at Rocky Flats

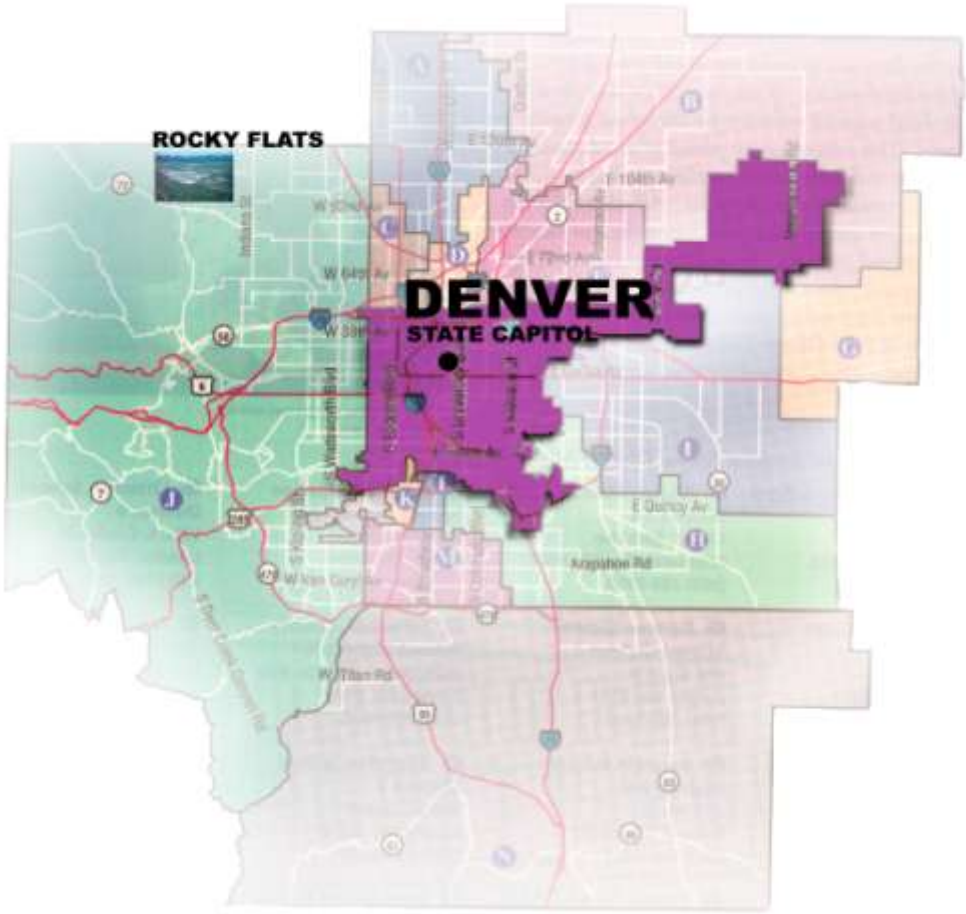
Criticality Safety and Operations Interface

June 2009, Atlanta

Rocky Flats site and objective

Rocky Flats location and 1995 inventory

- Plutonium
  - **10.8 U.S. tons**
- Plutonium Residues
  - **3.4 U.S. tons**
- Uranium
  - **7.4 U.S. tons**



Example Projects with criticality safety interest

Pencil tank draining

SNM stabilization

Residue stabilization

Partial Criticality Safety History

1951 - Operations begin

1989 - Allegations

- Violation of Environmental laws
- Criticality accidents

1990 - Operations stopped abruptly

1990 - New contractor-mandate for radical change

1993 - End of defense mission

1994 - Undisciplined draining incident

1995 - Multiple contractor system instituted

Operations and Criticality Safety

- Early History -
  - Good interaction
  - Innovative analysis and control methods
  - Relatively stable criticality safety staff
- Early 1990's
  - Significant outside attention
  - Rapid criticality staff turnover
  - Many new controls on operations
  - Evaluation response time long

Operations-Criticality Safety Relations

- Operations
  - observed high turnover of criticality safety staff
  - suspicious of new controls
  - facility goals confronted by a low probability accident
- Criticality Safety
  - trouble getting information necessary for evaluations
  - unprofessional communications
  - significant project changes without informing analyst
    - **consistent rework**

Role of Criticality Safety

- Safety oft considered an obstacle to be overcome rather that a resource to protect the employee.
- Evaluations and criticality safety controls considered a permissive to start an operation - not a commitment to understand or comply.

General Status in mid 1990's

- Many practices developed in response to regulatory initiatives
- Large staff with few veterans
- Most controls had scanty documentation
- Excessive debate on basic requirements
- Program element responsibility diffuse
- Communication awkward
- Integrated Management Contract

Site Response to Issues

- New manager
  - Observations and Interviews
  - Occasion for Program Development
- Interface with Operations
  - Fundamental Issue
  - Needed structural response

Wide Discussion on Ops/CS Interface

- Decide to build new program and build it around communication
  - Other sites surveyed
  - RFETS group convened
    - Safety/Operations/Union
  - Extensive Offsite Review
  - Consensus - Individual in Operations as bagholder
- Comprehensive Program Manual
  - CSO at core

CSO job description

- Set priorities for Criticality Safety staff
- Conduit of Information
  - Documents & People
- Approve evaluations and controls
- Develop Implementation Plan for Controls
- Manage nonconformance response
- Decide or mediate compliance issues
- Coordinate criticality related training

Initial CSO qualification

- Considerable operations experience
- Qualification Card
  - Reading list (Knief's book, Handbooks, Accidents)
  - Authorization basis
  - Criticality Safety Operating Basis (facility)
  - Nuclear Criticality Safety Manual
- Qualification Board
- OJT with Criticality Safety Engineer
- UNM short course on criticality safety

Final CSO qualification

- Qualification Card requirements
  - basic - 12 site courses
  - reading list
    - Handbooks and ANSI standards
    - Site manuals and procedures
  - 7 facility walkthroughs
  - 7 system reviews with SME
  - 6 specific OJT assignments
- Qualification Board
- short course on criticality safety

Later CSO program history

- 1995 Planning started
- 1996 NCS program manual and new CSO program established
- 1998 Program fully implemented
- 2005 Last fissile container shipment

Facility Manager CSO report

- Provide considerable knowledge to facility
- Resource for problem solving
- Coordinated better evaluations
- Assured operator understanding of evaluations and controls
- Resulted in fewer violations of controls
- Problem - too much to do

DNFSB staff report May, 2000

- Overall Assessment-Criticality Safety Program
  - mature
  - functioning adequately
  - ranks among the best in the complex
- Notable Strengths
  - presence of criticality safety personnel on the operating floor
  - Criticality Safety Officer liaison
  - clarity of the criticality safety evaluations

DOE HQ report on B371 January, 2000

- “The criticality safety officer (CSO) program in Building 371 is effective in integrating NCS into operations.”
- “The NCS staff presence on the floor and interaction with operations has improved implementation of NCS controls and operator understanding and awareness of NCS.”

Aftermath

- Result
  - Criticality Safety program became healthy
    (Safety and operational efficiency enhanced)
  - Ownership of Operational Criticality Safety shifted
  - CSO a necessary element
- CSO Program Needs
  - time to develop
  - continued attention
  - High level company advocate
  - periodic meetings with criticality safety