URS
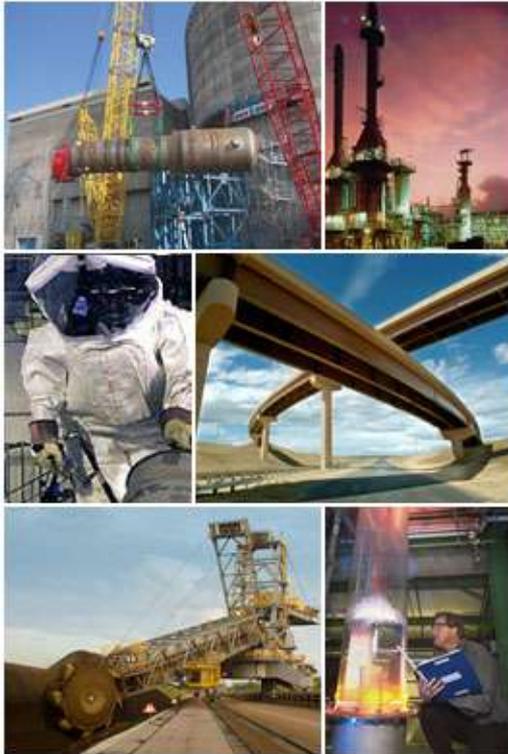
Washington Division

K-25 D&D Project Criticality Safety Officer Program

Roger W. Bartholomay,
Thomas J. Rankin,
and Samy Hanna

BECHTEL
JACOBS
Bechtel Jacobs Company LLC

Introduction

➢ Criticality Safety Officer (CSO) Program Description

➢ Benefits Reaped by K-25 Project

➢ Benefits Reaped by the Nuclear Criticality Safety (NCS) Program

➢ Lessons Learned from the K-25 CSO Program

➢ Personal Experience as a CSO/NCS Engineer

BECHTEL
JACOBS
Bechtel Jacobs Company LLC

The K-25 CSOs

➢ Herman Collins, Bernard Ammons, Steve DuBose,
   Steve Sandoval, Glen Harris, Samy Hanna, and Tom Rankin

   → Past CSOs not included in the picture: Mark Joseph, Ed Hoffman,
     and Todd Rozier

BECHTEL
JACOBS
Bechtel Jacobs Company LLC

K-25 CSO Program

➤ Provide daily criticality safety support to facility management and project personnel

➤ Attend work planning meetings

→ Observe and participate in daily work activities

→ Remain cognizant of facility changes and activities

➤ Recognize and respond to observed or reported anomalous conditions affecting NCS

→ Includes immediate recommendations, follow-up anomalous condition reports (ACRs), and corrective actions

➤ Perform reviews of Nuclear Criticality Safety Evaluations (NCSE)

→ Facilitate project personnel involvement, including management, line supervisors, and personnel performing work

K-25 CSO Program

➤ Provide support to project personnel in implementing NCSE requirements

➤ Ensure that appropriate NCS postings have been properly placed

➤ Perform routine reviews of new or revised K-25 Work Packages/Procedures

➤ Notify NCS engineer when significant facility changes or activities are planned that may impact

→ Criticality Accident Alarm System (CAAS) detection or annunciation

→ Fissile material operations

→ Active NCS requirements or documents

A Day in the Life of the K-25 CSO

- ➢ Attend pre-job tailgate meeting of assigned work group

- ➢ Discuss Plan-of-the-Day activities at daily CSO meeting

- ➢ Enter building and observe fissile material operations and communicate with workers

- ➢ Lunch

- ➢ Meetings, paperwork, and office type duties, work package reviews, etc.

- ➢ Rotate mornings and afternoons of building coverage
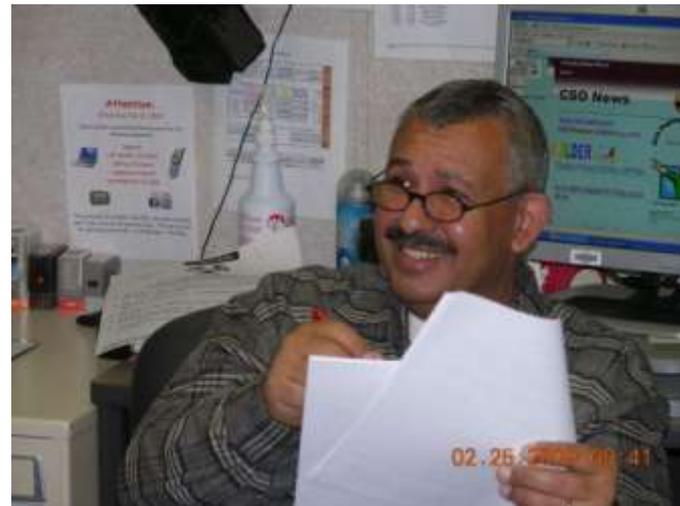
Benefits to the K-25 Project

➢ CSOs' wide range of operations experience has proved beneficial to the project

➢ CSOs have minimized the number of anomalous conditions and procedural violations

  → Pre-job briefing prior to the start of new Work Package

  → Daily pre-job briefing enables CSOs to anticipate the next operational tough spot or their actual needs for that day

➢ CSOs provide a "real time" NCS response to questions in the field

  → Able to interpret/clarify NCS controls directly to the workers

  → Excellent understanding of the work steps and overall Work Package scope

➢ Proof: Bechtel Jacobs has seen a benefit from the CSO program. Otherwise in staffing the new, separate, K-27 Project, they would not have included any CSOs

BECHTEL JACOBS
Bechtel Jacobs Company LLC

Benefits to the NCS Organization

- CSOs lead to increased communication between NCS Organization and the Operations Organization

    → DOE observation circa 2007 acknowledged great interface between Operations Group and the NCS Organization

- CSOs free up NCS engineers' time to do what they do best

- CSO review helps to clarify and simplify NCS evaluations and their controls

- CSOs provide a second opinion on the implementation of NCS controls into Work Packages

- CSOs provide increased vigilance on NCS posting placement, tracking, and maintenance

Lessons Learned

➢ NCS engineers can become too reliant on the CSOs for field information

  → Still need to personally assess a process change or anomalous condition

➢ The CSO program does present an additional loop in the chain of communication between Operations and NCS

  → Bypassed at times by Operations and NCS engineers not involving CSOs in discussions and decisions

  → Can lead to miscommunication, when CSOs and NCS engineers are not in agreement and communicate different information to Operations personnel

➢ The extensive qualification process can take up to a year

  → Produces a knowledgeable, confident CSO who provides excellent support to the project

Confessions of a Former CSO/NCS Engineer

➢ Project needed a guinea pig to test the process of qualifying CSOs

→ Oral Board Examination

➢ Project also needed someone to help on-the-job train future CSO candidates

➢ Since already qualified as an NCS engineer, no difficulty with the technical aspects/requirements of the job

➢ Once qualified, help the project get through the initial Segmentation Shop Operational Readiness Review (2005)

→ Key component to beginning the D&D process at K-25

Confessions of a Former CSO/NCS Engineer (Cont.)

➢ Experience has helped me become a better NCS engineer

→ Know the facility better (inside it daily)

→ Understand potential upsets better

→ Appreciate the need to make NCS controls simple

→ See the need to work toward helping Operations solve problems associated with NCS (giving them options in the NCS evaluation)

→ Understand other organizations' needs and requirements

→ Understand Operation's difficulty in combining every organizations' requirements

➢ If you have a young NCS engineer or are looking to create/build a strong engineering staff in an operational facility, consider having them spend a half year or more in the shoes of a CSO

Conclusion

- ➢ CSO program at K-25 has been and continues to be of great benefit to the project, as well as the NCS Organization
- ➢ CSOs provide an excellent liaison between the NCS Organization and Facility Operations
- ➢ The CSOs are a valuable piece of the D&D team
- ➢ The CSOs are heavily relied upon by
  - → Facility managers
  - → Facility engineers
  - → Foremen of work crews
  - → Work Package writers
  - → NCS engineers

Acknowledgements