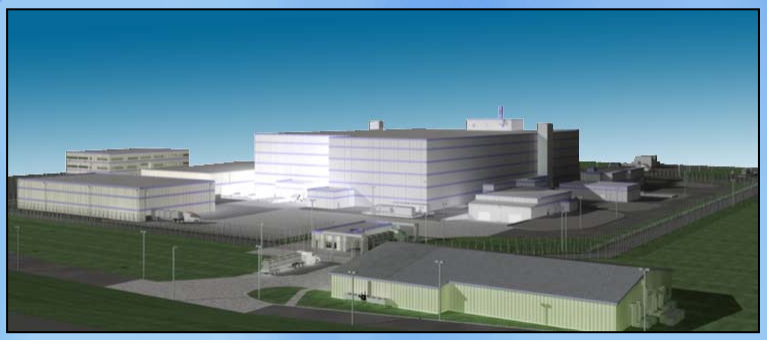
Mixed Oxide Fuel Fabrication Facility



NRC/MOX Services Management Meeting
November 19, 2009

Introduction

- MOX Services is committed to ensuring the MFFF meets regulatory requirements
  - Notice of Violation (NOV)
  - Root cause analysis to evaluate civil/structural issues
  - Preventive actions to preclude recurrence
  - Additional actions
  - Nuclear safety culture

Notice of Violations (NOVs)

- Three civil/structural NOVs for January – June 2009
  - Timely documentation of conditions adverse to quality
  - Following approved implementing drawings and specifications
  - Adequate documented justification for design changes
- NOV issues addressed in accordance with corrective action program
  - Evaluations demonstrated as constructed facility will perform IROFS functions
- Additional civil/structural issues identified in corrective action program
  - MOX Services generated CR 20090168 to investigate issues collectively

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Root Cause Analysis (RCA)

- Includes civil structural issues in NOV
- Includes additional related MOX Services identified issues
- RCA team consisted of representatives
  - Quality Control
  - Root Cause Team Leader
  - Engineering
  - Construction Engineering
  - Quality Assurance
- Completed RCA-09-004 in July 2009

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Root Cause Analysis (RCA)

- Identified four root causes
  - Installation tolerances were specified by direct reference to ACI codes
  - Subcontractor and construction engineering checks did not have necessary rigor to consistently identify and resolve deficiencies
  - Some technical decisions lacked clear documented justification
  - Process for changes during prolonged QC inspections needed improvement
- Also identified two contributing factors
  - Some concerns were dealt with verbally
  - Inattention to detail

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Preventative Actions

- Improved quality barriers
  - Incorporated quality checklists (similar to those used by QC) into subcontractor and construction engineering procedures
  - Subcontractor and construction engineering checklists completed prior to release for final QC inspection
  - Briefed subcontractor and construction engineering on use of quality checklists
  - Training of subcontractor field supervision and management by MOX QC organization

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Preventative Actions

- Improved quality barriers (con't)
  - RCA team did not find examples of QC missing issues when the requirements were clearly identified;
    - Expanded MOX QC checklists to clearly identify ACI tolerances
  - Revised QC process for extended inspections
    - Final QC inspection will not commence until after subcontractor and construction engineering verification of applicable attribute

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Preventative Actions

- Improved attention to detail
  - Current subcontractor assigned onsite manager to strengthen onsite organization for the inspection process
  - MOX QA provided quality culture training to subcontractor
    - *Quality is the responsibility of the installer and cannot be inspected in*
  - Re-emphasized expectations for increased attention to detail

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Status

- Construction audit results showed marked improvement by the installation subcontractor and the Construction Engineering organization
- Quarterly trends results indicate that ownership of quality is starting to take hold at the craft and engineering level
- Condition Reports (CRs) and Nonconformance Reports (NCRs) are being written by the line organization rather than QA/QC

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Preventative Actions

- Improved communications
  - Provided training to construction, engineering, and QC
    - Emphasized need for clear documentation of decisions
    - How to raise current or repetitive issues
  - Incorporated into ongoing training
  - Established single point of contacts in Engineering, Construction, and QC to raise current or repetitive issues for resolution
  - Increased presence of design engineers in the field
  - Assigned civil design engineer to each pour
- Added engineering signoff to pour card
  - Issues are resolved for that pour

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Preventative Actions

- Improved technical justification
  - Revised project procedure PP9-21, *Engineering Change Requests* to address the importance of providing appropriate level of technical justification
  - Developed and provided technical justification class room training to engineering personnel
    - Requirements for technical justification
    - Expectations for documentation of technical justification
    - Included in new engineer training

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Preventative Actions

- Specification of tolerances
  - Issued ECR 1804 Rev 1 to clearly describe clear cover requirements
  - Performed review of ACI 117 and 349 tolerance requirements
  - Review supported by ACI code experts
  - Review incorporated into general notes drawings

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Additional Actions

- Civil/structural staffing
  - Full time staff (including short and long term) increased from 15 to 28 since January 2009
  - Increased code and concrete expertise availability (Shaw and industry consultants)
  - Added additional ANSYS analyst
  - ANSYS expert available for short term consulting
  - Continuing to recruit experienced civil/structural engineers

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Status

- Preliminary evaluations complete for each issue
- Analyses of as-constructed facility demonstrated MFFF structure will perform required IROFS functions
- Issues being addressed for in progress work
  - Verification of documented resolutions prior to each pour

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Nuclear Safety Culture

- Safety conscious work environment survey
  - Conducted in February 2008
  - Scored high in awareness of and adherence to elements of safety conscious work environment
  - Additional survey currently being planned in 2010
- Training
  - General Employee
  - Material False Statement
  - Safety Conscious Work Environment
  - Design Requirements and Documentation
  - Corrective Action Process

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Nuclear Safety Culture

- All Hands Meetings
  - MOX Project team values
  - Safety Conscious Work Environment
- Communications
  - Corrective Action Program
  - Open communications
  - Professionalism in the work place
  - Employee Concerns Program
  - Safety Conscious Work Environment
  - Timely reporting of adverse conditions
  - Quality culture posters
  - Quality culture topics

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Conclusion

- MOX Services has implemented actions to preclude these types of issues
  - clear direction
  - added or modified processes
  - targeted training
  - increased staff
- MOX Services continues to take actions to improve nuclear safety culture and it's a continuous process

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