Overview

• Characterization of issues
• Review causal factors
• Highlight key improvement actions
• Perspective of significance
Issue Context

• Observed Problems Relate to Four Broad Categories
  – Conduct of operations (ConOps)
    • Hazardous energy control
    • Technical Safety Requirements (TSR) control violations
    • Contamination events
  – Conduct of engineering
    • Documented Safety Analysis (DSA) errors
    • Rigor of technical bases
    • Potential Inadequacies in the Safety Analyses/Unreviewed Safety Questions
  – Maintenance
    • Growing backlog of deferred maintenance
    • Increased process equipment downtime
  – Training
    • Exam bank configuration management with DSAs
    • Rigor of exam grading
Causal Factors

• **Conduct of Operations**
  – Aging infrastructure
    ▪ Workers get used to degraded or broken equipment
    ▪ Increased downtime due to design or process problems
  – Workforce reductions
    ▪ Resulting from retirements, furloughs, and changing tempo of operations
  – Inconsistency/lack of rigor managing Technical Safety Requirements (TSRs)

• **Conduct of Engineering**
  – Human performance related to validating inputs and assumptions
  – Leadership and integration of engineering interfaces
  – Legacy errors

• **Conduct of Maintenance**
  – Hiring of maintenance personnel has only kept up with attrition
  – Increasing backlog due to the need to maintain and operate aging equipment
    ▪ Maintaining operability of safety systems assures worker and public protection
    ▪ Process/production systems allowed to operate to failure and are then repaired as needed

• **Training**
  – Insufficient staffing to maintain exam bank configuration control
Actions to Improve Conduct of Operations

**SRNS**
- Increased staffing (+56 operators) and rotational assignments of managers
- Strengthening and reinvigorating drill programs
- Raising standards through continuing and scenario-based training
  - *Dedicated training time, tech school partnerships and internships, improved entry exam*
- Strengthen leadership
  - *Developed and Implemented First and Second Line Manager Leadership Program*
  - *Executed personnel rotation at Mid-Level Management*
  - *Hiring six additional Shift Managers – strengthen Procedures/Training*
  - *Long-term focus to ensure proper decision making/strong controls*
- Improve quality/effectiveness of hazardous energy control qualification and training

**SRR**
- Frequent planned outages to improve plant reliability
- Investing in safety related equipment modifications and improvements
- Emphasize rigor/technical inquisitiveness to identify and resolve problems
Actions to Improve Conduct of Engineering

• **SRNS**
  – Hiring additional engineers
  – Additional technical staff qualification program requirements
    • *Engineering reasoning and critical thinking topics.*
  – Improving technical review quality
    • *Control of scope*
    • *Critical thinking and project management training*
    • *Standardizing review processes by procedure*

• **SRR**
  – Reviewed TSRs/Specific Administrative Controls with a focus on implementation
    • *Identified Potential Inadequacies in the Safety Analysis (PISAs) and implementation errors through improved inquisitiveness*
  – Increased operations involvement in Safety Basis development
  – Reviewed Unreviewed Safety Question process implementation for content/consistency
Actions to Improve Maintenance Backlog

- Hiring additional planners and maintenance personnel
- Heavy prioritization to maintain and repair safety related equipment
- Enhancing outage planning and scheduling
- Process improvements
  - LEAN process analysis, nuclear services contracts, optimize periodicity
- Increased management priority and attention
  - Higher priority for funding
Actions to Improve Training

• Hiring personnel and reorganizing Site Training for better alignment to field needs
  – Manager – 26 year Navy Veteran with extensive training background
  – Twenty-nine new instructors and support personnel

• Re-enforce knowledge through more formal training
  – Classroom/exam versus briefings

• Developing partnerships with key Tech Schools (non-exempt positions)
  – Increased fundamental / knowledge level for new hires
  – Entry exam improvements

• Dedicated training time to ensure continuing training programs are robust
  – Scenario based, team-based, problem solving training
DOE Perspective – WIPP Incident Context

• Some Similarities with Causal Factors Noted for WIPP Incidents
  – Tightening budgets
    • **SRS actions**: Use of management efficiencies and new technologies, seek funding, revisit production goals and work scope priority
  – Weaknesses with CONOPS rigor and discipline
    • **SRS actions**: Significant improvements since the initial DOE CONOPS Concern Letter
  – Degrading equipment
    • **SRS actions**: Established Integrated Project Team to evaluate the Site Maintenance Program
    • **SRS actions**: Increased management focus on maintenance activity and support
  – Weaknesses with CAS implementation
    • **SRS actions**: DOE to perform a review of CAS effectiveness
      – Contractors are effective at identifying deficiencies
      – Pulling together trends and elevating issues are areas for improvement
  – Weaknesses with DOE oversight of safety management programs
    • **SRS actions**: Developing framework for more integrated programmatic reviews
• Significant Differences with WIPP Causal Factors
  – Nuclear focus versus mine operation focus
    • Complexity of SRS facilities and operations drive a strong nuclear focus
    • Decades long tradition of focusing on hazardous operations
      – Dupont began with experience with chemical hazards
      – Reactor programs created a strong nuclear operations focus
  – Strong line oversight
    • Facility Representatives and Facility Engineers
    • Contractor and federal resources mentoring and supporting WIPP recovery
  – Known deficiencies are driven to closure
    • Institutionalized process in the Integrated Performance Assurance Manual
Summary

• SRR and SRNS are addressing issues and their underlying causes.
  – Improvements noted in conduct of operations and engineering

• While some WIPP incident precursors are present, there are significant differences that indicate the present situation does not represent an urgent safety concern.
  – Similarities are being worked and represent a need for continued vigilance.

• The Department has tough decisions regarding production goals.
  – May decrease or suspend facility production to free up resources
  – Extensions could introduce new technical and project management risks to manage
Back up slides
SRR Maintenance Backlog

SRR Total Backlog - All Work Crews

Man Hours