



EM Quality Assurance Presentation to the December 6-8, 2011 Quality Council Meeting

EM Lessons Learned

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Outline



- EM QA Program
 - Background and Timeline

- Major Design and Construction Projects
 - QA Experience, Issues, and Lessons

- Recent corporate strategies and initiatives to leverage Lessons Learned





EM Corporate QA Program Background and Timeline

Evolution of EM Corporate QA Program: Focus and Priorities



Reinvigorate QA Get the QA message out!

- Frequent Audit/Assist visits
- Compliance focused
- Ensure prime contracts include QA Order

Create EM corporate QA identity

- Define DOE/EM requirements & expectations
- Nuclear industry codes/standards
- EM QA Corporate Board
- Lessons learned
- Best practices
- Integrated System

Build QA capacity and capability

- Tools, resources
- Operational awareness
- Training/qualifications
- New hires
- Audits/assessments
- Technical assists

Enhance project specific QA execution and performance

- EM-QA-001 Revision
- Tech assistance
- Engineering, design, construction projects
- Risk-based and targeted assessments
- Responsive to project-specific QA needs and issues



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EM Experience Associated with a Spectrum of Unique Nuclear Projects

- Waste Treatment Plant, Hanford Site ([HazCat 2, construction](#))
- K-Basins Sludge Treatment, Hanford Site ([HazCat 2, design](#))
- Salt Waste Processing Facility, Savannah River Site, ([HazCat 2, construction](#))
- Sodium Bearing Waste, Idaho Site, ([HazCat 2, construction and begin startup and commissioning](#))
- Depleted Uranium Hexafluoride (DUF⁶), Paducah/Portsmouth, ([HazCat 3, commissioning/operation](#))
- Tank 48 Treatment, Savannah River Site, ([HazCat 2, conceptual design](#))
- Uranium-233 Material Downblending and Disposition, Oak Ridge, ([HazCat 2, preliminary design](#))

Different Lifecycle Phases

Different Designs

Different Sizes

Different Technologies

Different Processes

Different Sites

Different Organizations

Different Challenges

Yet they all point to common experiences and lessons learned.....



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Common QA Issues Associated with Major Projects

Common Quality Assurance Issues

- Commercial grade dedication
- Suspect/counterfeit
- Lack of proactive integration of QA in early stages of design, engineering, and construction
- QA weaknesses in procurement process (e.g., service/product specification in RFPs, selection of vendors), scope of work, flow down, and performance monitoring
- Configuration management
- Software QA and digital instrumentation and control (I&C)
- NQA-1 training, qualification, and supplier capacity





Generic Lessons Associated with Major Projects

Generic Lessons:

- Projects will require more technical resources and expertise than anticipated
 - Training/Qualification/Subject Matter Expertise
 - Engineering discipline and quality assurance know-how
- Contracts alone cannot and do not address all project risks
 - Need to maintain productive Federal engagement
 - Timely operational awareness throughout Critical Decision (CD) processes critical
- Strict controls on design changes are critical
 - Establishment of a technically sound and defensible Code of Record (CoR)
- Integration of QA in all aspects of project management is a must
 - Embed QA in all aspects of project management functions including procurement, supply chain, fabrication, design, engineering, construction, commissioning, operation





Recent Strategies to Improve QA Performance

- Strengthen QA know-how
 - Development of Standard Review Plan (SRP) modules focused on technical soundness of critical decision (CD) review and approval process - posted on EM portal
 - Issuance of specialized EM guidance documents
 - Commercial grade dedication
 - Integrating QA in design
 - Identification and dissemination of lessons learned
 - Hosted Construction Summit – EM, NNSA, HSS, SC, Naval Reactors, and DNFSB staff
 - Leveraged DOE and EFCOG participation as part of the QA Corporate Board to focus on:
 - NQA-1 Suppliers (Joint Supplier Evaluation Program)
 - QA/QC Evaluation of QA Resources
 - Strategy for EM QA/QC Training





Recent Strategies to Improve QA Performance (Cont'd)

- Clarify/Streamline QA requirements and expectations
 - Update EM Corporate QAP, EM-QA-001, dated 2008
 - The writing team (EM and EFCOG representatives) is considering:
 - Potential flexibilities and enhancements provided by DOE O 414.1D
 - Updates to Management Expectations based on QA operating experience, project specific lessons learned, and screening of approximately 600 plus QA related documents (e.g., memos, letters, reports) issued to the Field over the last 3-4 years
 - Standard Contract Language (DOE to Prime)
- Development and implementation of enhanced QA audit/oversight
 - Targeted and focused on project-specific lifecycle needs and issues
 - Greater utilization and leveraging of available EM corporate data and information sources to enhance precision on oversight decisions: *audit scope, target, and context*
 - Streamlined onsite review process to enable more technical engagement and interaction with project personnel including FPDs and the IPTs





Words of Wisdom: Equally Applicable to QA



A PAGE OF ADMIRAL RICKOVER'S Rules for Safety

- **Practice Continuous Improvement**
Have a rising standard of quality as time goes on, that is well above minimum standards
- **Hire Capable People**
Personnel should be highly capable and trained by those who have experience under a wide range of conditions
- **Establish Quality Supervision**
Foremen have to face bad news when it comes, and must be willing to take it up to a management level that can assign personnel and equipment to deal with the problem
- **Have a Healthy Respect for the Dangers You Face**
People on the job have to have a healthy respect for the dangers of the job
- **Every Day is a Training Day**
Training must be constant and rigorous
- **Audit, Control, and Inspect**
All functions of repair, quality control, safety and technical support must fit together
- **Learn from Past Mistakes**
The organization must be willing and able to learn from mistakes of the past

Which rule is the most important?

More important than any of these rules is an alert, safety-conscious frame of mind. Some people think that they don't have time to work safely. Think about the results of an on-the-job injury. Lost-time accidents, with their paperwork, hassle, court cases, and most importantly, pain and suffering, will cut productivity more than avoiding unnecessary risks. So, next time the temptation rises to take a risky shortcut, think of the admiral and his rules.



Questions



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