Critical Utilities Infrastructure Revitalization

Quality Assurance

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CUIR Industry Day
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Outline

• Quality Assurance

• Quality Supervision
Quality Assurance
Quality Assurance

Flow down of DOE Order 414.1D Contract Requirements

10 CFR 830, Subpart A
Quality Assurance Requirements

DOE Order 414-1D
Quality Assurance Order

SLAC
Quality Assurance Program

Project
Local QAP

Subcontractor
QA/QC
# Quality Assurance

## 1) QAP, PIM, and CM Manual Implementation
- **Management:** Program, Structure, Processes
- **Performance:** Design

## 2) Process Improvement and Workflows
- **Management:** Document and Records
- **Performance:** Work Processes

## 3) Qualifications and Training
- **Management:** Personnel Training and Qualifications
- **Performance:** Inspection and Acceptance Testing

## 4) Quality Supervision, Walkthroughs, and Assessment
- **Performance:** Procurement, Integration, Evaluation & Acceptance
- **Assessment:** Internal and Independent

## 5) Quality Culture & Mindset
- **Management:** Quality Improvement
- **Performance:** Applying Lessons Learned
Quality Management System (QMS)

Reinforcing the QA/QC in the Field & During Execution
<table>
<thead>
<tr>
<th>Performance Area</th>
<th>Metric</th>
<th>Key Indicator</th>
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</thead>
<tbody>
<tr>
<td>Quality Management System</td>
<td>Documented Procedure for QC and QA</td>
<td>Manual, Plan, Checklists</td>
</tr>
<tr>
<td>Personnel Organizational Chart</td>
<td>Same person can’t be both QC and QA</td>
<td>Qualification &amp; Certifications</td>
</tr>
<tr>
<td>Authority &amp; Stop Work</td>
<td>QA Manager Point of Contact</td>
<td>Direct to Senior Management</td>
</tr>
<tr>
<td>Corrective Action Program</td>
<td>Validation &amp; Verification &amp; Correction Process</td>
<td>Workflow &amp; Documentation</td>
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<tr>
<td>Assessment Program</td>
<td>Internal and Independent External</td>
<td>Frequency &amp; Effectiveness</td>
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<tr>
<td><strong>Mandatory</strong></td>
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<tr>
<td>Experience</td>
<td>Per Statement of Work &amp; Contract Documents</td>
<td>Subject Matter Expertise</td>
</tr>
<tr>
<td>Standards</td>
<td>Per Contract Documents &amp; Specifications</td>
<td>Certifications</td>
</tr>
<tr>
<td>Capabilities</td>
<td>Relevant Resumes and History</td>
<td>Preferred 5 years</td>
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<tr>
<td><strong>Required</strong></td>
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<tr>
<td>Associations</td>
<td>ASQ, USACE, CII, PMI, CMAA, AGC, and LCI</td>
<td>Preferred &amp; Recognized</td>
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<td>Methodologies</td>
<td>DOE Guidelines, EFCOG, PMBoK, CQM-C</td>
<td>Best Practices</td>
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<td>Innovation</td>
<td>Tools &amp; Technologies, Transfer of Knowledge</td>
<td>Blogs &amp; White Papers</td>
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<tr>
<td>Lessons Learned</td>
<td>Continuous Improvement Program</td>
<td>Description &amp; Commitment</td>
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<tr>
<td><strong>Expected</strong></td>
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## References

<table>
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<tr>
<th>References</th>
<th>Website</th>
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<tr>
<td>AGC</td>
<td>AGC of America <a href="https://www.agc.org/">https://www.agc.org/</a></td>
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<tr>
<td>ASQ</td>
<td>American Society for Quality <a href="https://asq.org/">https://asq.org/</a></td>
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<td>CII</td>
<td>Construction Industry Institute <a href="https://www.construction-institute.org/">https://www.construction-institute.org/</a></td>
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<td>CMAA</td>
<td>Construction Management Association of America <a href="https://www.cmaanet.org/">https://www.cmaanet.org/</a></td>
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<tr>
<td>DOE Guidelines</td>
<td>DOE Technical Standards Program <a href="https://www.standards.doe.gov/">https://www.standards.doe.gov/</a></td>
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<td>EFCOG</td>
<td>Energy Facility Contractors Group <a href="https://efcog.org/">https://efcog.org/</a></td>
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<td>LCI</td>
<td>Lean Construction Institute <a href="https://leanconstruction.org/">https://leanconstruction.org/</a></td>
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<tr>
<td>PMI</td>
<td>Project Management Institute <a href="https://www.pmi.org/">https://www.pmi.org/</a></td>
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Quality Supervision
Integrated Safety Management

Work Planning & Control

In collaboration with ESH & CM
WPC Verification and Validation

**QA/QC throughout the Project Lifecycle**

**Engineering**
- Requirements Tracking
- Quality Level Identification
- Design Reviews & Approvals
- Peer & External Reviews
- Systems Engineering
- Technical Change Control
- Assessments & Documentation

**Procurement**
- Subcontractor Quality Control
- Site Visits & Witness Factory Acceptance
- Manufacturing Readiness Review (MRR)
- Shipping/Transportation Readiness Review (SRR/TRR)
- Factory Acceptance Test & Inspection
- Incoming Receiving Inspection at SLAC
- Final Acceptance by SLAC QA Representative

**Construction**
- BIO Vendor Design Review
- Monitoring of Vendor Execution
- Non-conformance Management
- Technical Change Control
- Controlled Document Repository
- Shipping & Storage
- Assessments & Audits

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Suspect/Counterfeit and Defective Items

The Subcontractor has a **formal system** to adequately identify, define, and implement controls that:

A. Identify and preclude S/CI from being introduced into the DOE supply chain that may create potential hazards;

B. Ensure oversight of the S/CI program;

C. Verify identified S/CIs are controlled and segregated and not placed back into the supply chain; and

D. Effectively communicate S/CI and defective items/products to other organizations

Three main performance objectives for the S/CI assessment process:

- Oversight of Sub-tiers and Suppliers,
- Controls to avoid S/CI & Defective items,
- Reporting to SLAC QA per DOE Order 414.1D
Management Walk Arounds

MWA offers management and supervision regular interaction with personnel during work.

- The program aims to engage team members, gather feedback, and ensure understanding of work activities and processes.
- Objectives include implementing necessary controls and fostering continuous improvement in processes.
- Observe work practices and monitor work areas, contributing to performance assurance.
- Complementing the SLAC Assessment Program.

More information and Resources are available at the [https://assurance.slac.stanford.edu/](https://assurance.slac.stanford.edu/).
Thank You