



We do the right thing.

# “No QA Required” Debunking the Myth of Non-safety-related Procurement

**UNCLASSIFIED**

DOES NOT CONTAIN  
UNCLASSIFIED CONTROLLED  
NUCLEAR INFORMATION

ADC &  
Reviewing  
Official: *Bob Hinds*  
(Name and Title)  
Date: *August 29, 2010*

September 15, 2010

Bob Hinds, Manager, Quality Engineering

Savannah River Remediation LLC

Integrated Safety Management Champions Conference 2010

SRR-ESH-2010-00120



Bob Hinds

Manager, Quality Engineering  
Savannah River Remediation  
DOE – Savannah River Site

Thirty-five years' experience Naval, Commercial, and DOE Nuclear:

- Quality Assurance
- Operations & Training
- Radiochemistry & Health Physics
- Engineering Programs
- Project Management
  
- Extensive experience qualifying and auditing suppliers
- Former National Board Certified Inspector
- Managed initial qualification of the Defense Waste Processing Facility QA program to implement RW-333p
- Degrees in QA Technology and Technical Education

- NQA-1 is applied to all activities at SRS
- Graded approach used in all disciplines
- “Packaged” set of requirements
- Technical requirements based on mission
- Safety function based technical needs
- QA requirements based on safety function
- Most QA requirements not the vendor’s responsibility

- Program
- Personnel Training & Qualification
- Quality Improvement
- Documents & Records
- Work Processes
- Design
- Procurement
- Inspection & Acceptance Testing
- Management Assessment
- Independent Assessment
- Supplemental Criteria
  - Suspect / Counterfeit Item Prevention
  - Safety Software QA
  - Corrective Action Management Program

- DOE Order 414.1C Quality Assurance
  - Att. 2, Contractor Requirements Document
- SRS Contractors use NQA-1-2000
  - M&O, Liquid Waste Operations Contractors
  - 10CFR830, other QA rules and orders
- “...to achieve QA for all work...”
- “...flowing down the requirements of this CRD to subcontractors at any tier **to the extent necessary...**”

Items and services may require varying degrees of control and verification to ensure compliance with requirements. Some factors that should be considered in determining appropriate levels of control and verification are:

- **(a)** the hazards associated with doing the work or using the results of the work;
- **(b)** the consequences of malfunction or failure of the item, or inappropriate use of the results of services provided;
- **(c)** the probability of the occurrence of the postulated consequences;
- **(d)** the design and fabrication complexity or uniqueness of the item, or difficulty to perform services;
- **(e)** the need for special controls and oversight of processes, equipment, and performance;
- **(f)** the degree to which functional compliance can be demonstrated by inspection, test, or performance verification;
- **(g)** the quality history and degree of standardization of items and services; and
- **(h)** the difficulty of repair, replacement, or replication of the items and services.

- Integrated procedures for multiple functional support activities
  - QA, Engineering, Procurement
- Identification of technical requirements
- Functional Classification
  - Importance to Safety
  - Four levels at SRS
  - Varies at DOE Field Offices & Projects

- Safety Class (SC)
  - Could expose public to radiological risk
- Safety Significant (SS)
  - Radiological risk to workers
  - Chemical hazard risk to public
- Production Support (PS)
  - Facility Support Systems
- General Services (GS)
  - Infrastructure support systems

- Two Options
  - Risk-Probability Determination
  - Functional Classification Matrix
- Procurement Level 1 - Most QA
  - Safety Class=PL1 with RICP
- PL 2 - Intermediate level of requirements
  - Safety Significant=PL2 with RICP
  - PS/GS with Receiving Inspection Criteria Package
  - Any technical requirements specific to SRS use
- PL 3 – Lowest level of requirements
  - PS/GS
  - Does NOT mean “No QA Required”

# Why Classify?

- SRS buys approximately 50,000 items/year
- Time available for mission execution
- Labor for individual determination
- Availability of vendors able or willing
- NQA-1 has a boiler & pressure vessel legacy
  - Uncommon in Chemical, Electronics, others
- Cost of implementing NQA-1 controls
- Effective way to apply appropriate controls
  - 50 years of Commercial Nuclear Experience

- What it really means:
  - “No additional QA Program requirements imposed on the vendor”
- QA Program processes applied before, during, or after the procurement
- The customer assumes more responsibility for Quality

# Graded Approach

We do the right thing.

Functional Class	Safety Class (SC)	Safety Significant (SS)	Production Support - General Services (PS/GS)
<b>Procurement Class</b>	PL-1	PL-2	PL-3
<b>Example:</b> Globe Valve	Controls inert gas flow to blanket volatile radioactive liquids	Controls water cooling a safety class component	Controls service water for flushing systems
<b>Procurement QA Requirements</b> (additional technical QA requirements may apply)	<ul style="list-style-type: none"> <li>•Vendor qualified before award</li> <li>•NQA-1 Part 1 (par 100-900)</li> <li>•Detailed technical specification</li> <li>•In-process tests &amp; inspections</li> <li>•Certification of Materials</li> <li>•Vendor Surveillance</li> <li>•Detailed Receipt inspection by qualified inspectors</li> <li>•QC Inspector verification at point-of-installation</li> <li>•Component level testing</li> <li>•Functional System Test</li> </ul>	<ul style="list-style-type: none"> <li>•Post-award QA program approval</li> <li>•More qualification options</li> <li>•Less rigorous NQA-1 QA requirements</li> <li>•May be catalog # plus modifications</li> <li>•Vendor surveillance of special processes</li> <li>•Receipt inspection by qualified inspectors</li> <li>•Additional point of installation test/inspect</li> </ul>	<ul style="list-style-type: none"> <li>•No NQA-1 Program qualification of vendor</li> <li>•Specification by Vendor Catalog ID#</li> <li>•Related Consensus Standards applied</li> <li>•Receipt inspected for General condition</li> <li>•Confirmation against catalog #</li> <li>•Point of Installation inspection by craft</li> <li>•In-service leak test</li> </ul>

- One set of procedures for all activities
  - Systematic/imbedded graded approach
- Assessment for impact on safety
  - Determination of Technical Requirements
  - Designation by Functional Class
  - Assignment of Procurement Level
- Designation of functional class and procurement level is proof that the graded approach has been applied

- Functional class assigned only after:
  - Assessment of technical requirements
  - impact on safety evaluated
- Procurement level requires functional classification
- Even PL3 “Catalog Items” subject to standards
  - “UL listed,” “API,” “ASME,” others
  - Some vendors qualified to ISO 9000, other standards
  - Verification upon receipt
  - Verification at point of installation (work packages)
  - System testing]
  - Suspect parts identification

- PS with Specific Technical Requirements
  - Engineered components for use in radioactive waste processing environment
  - Corrosion resistance
  - Adaptation to existing infrastructure
- Technical Specification
  - QA Program Requirements
  - Test criteria, Vendor Surveillance, Documentation
- Special Receipt Inspections Requirements
  - Receipt Inspection Criteria Package

- RICP Minimum receipt inspection criteria
  - ID & Markings
  - Suspect/Counterfeit Item Assessment
  - Physical damage and packaging
  - Cleanliness
  - Configuration and Workmanship
  - Sample Plan Attributes
  - Critical Salient Features
    - Specific to each technical specification

## Based on the PL-2 acquisition of a PS class D/P Transmitter for the MCU/ARP Project

DOE 414.1 C Criteria	Graded Approach Factors from NOA-1	QA PROGRAM IMPLEMENTING DOCUMENT Site & SRR Specific Programs and Procedures
1. Program	-	QAMP 1Q QAP 1-1 Organization QAP 2-1 Quality Assurance Program 1-01 Mgmt Policies
2. Training	-	1Q QAP 2-2 Personnel Training and Qualification QAP 2-5 Training & Qualification of Inspection Personnel - Includes qualification of engineers analyzing technical requirements, functional classification
3. Quality Improvement	(c), (g)	1Q QAP 18-4 Management Assessment QAP 19-2 Quality Improvement QAP 16-3 Corrective Action Program QAP 15-1 Control of Nonconforming Items

4. Documents & Records	(f), (g)	1Q QAP 4-1 Procurement Document Control QAP 6-1 Document Control QAP 17-1 Quality Assurance Records Management
5. Work Processes	(d), (e), (h)	1Q QAP 5-1 Instructions, Procedures and Drawings QAP 9-4 Work Planning & Control QAP 9-3 Control of Welding and Joining Processes QAP 12-1 Control of M&TE QAP 14-1 Inspection, Test & Operating Status 3E Procurement Specification Procedure Manual 7B Procurement Management 1Y Conduct of Maintenance
6. Design	(a), (b), (c), (d), (h)	1Q QAP 3-1 Design Control E7 Conduct of Engineering -2.25 Functional Classification -3.10 Determination of Quality Requirements for Procured Items -3.46 Replacement Item Evaluation/CGD 11Q Manual – Safety Analysis
7. Procurement	(b), (d), (g)	1Q QAP 7-2 Control of Purchased Items and Services QAP 4-1 Procurement Document Control 7B Procurement Management Manual

8. Inspection & Testing	(f)	1Q QAP 8-1 Identification & Control of Items QAP 10-1 Inspection QAP 11-1 Test Control QAP 14-1 Inspection, Test and Operating Status S4 Manual – Facility Specific Technical Procedures 5E Start-up Test Manual 12Q Assessment Manual
9. Management Assessment	(e)	1Q QAP 18-4 Management Assessment Program QAP 16-3 Corrective Action Program
10. Independent Assessment	(e)	1Q QAP 18-3 QA External Audits QAP 18-4 Management Assessments QAP 18-6 Quality Assurance Internal Audits
A. Suspect / Counterfeit Items*	-	MRP 5.19 Suspect and Counterfeit Item Program
B. Corrective Action Mgmt*	(g)	MRP 4.23 Corrective Action Program QAP 16-3 Corrective Action Program
C. Safety Software QA*	-	Not Applicable to this system, structure, and component

- QA program applies to all activities
- Implemented using a graded approach
- Procurement QA is not limited to actions or documentation required of a supplier
- Quality verification activities can be performed by the customer in the absence of suppliers with qualified QA Programs.