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Tank 48 Treatment Process Project: Quality Assurance Approach

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Savannah River Remediation LLC

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- Quality Assurance Engineering Lead for the Tank 48 Project.
- A.S., Mech. Eng. Tech., West Virginia Institute of Technology.
- Thirty years experience in nuclear construction, operations, and quality
- Began career in nuclear construction with Tennessee Valley Authority at the Watts Bar Nuclear Power Plant.
- Procurement Engineer/Quality Control with Georgia Power at Plant Vogtle before coming to SRS in 1988.
- Helped develop and establish SRS Quality Assurance programs as Quality Inspection Supervisor and Quality Engineer.
- Returned to the commercial sector for Watts Bar Unit 2 - Completion Project.
- Returned to SRR as Tank 48 Project QA Lead in February 2010

The Tank 48 Fluidized Bed Steam Reformer (FBSR) project is:

- Designed to treat organic-laden waste for disposition and return the tank to High Level Waste Service.
- A Major Modification with several safety significant systems, structures, & components (SSC)
- An important project based on stakeholder commitments and resource investment.



The destruction of organic chemicals contained in 250Kgal of Tank 48 waste will yield 1.3Mgal of Type IIIA waste tank space .

- Critical Decision CD-1 range is \$155-\$180 million
- Preparing for CD-2A/3A (Long Lead Procurements)
- CD-4 forecast for August 2014
- Project will recover tank space to support tank closure mission and closure of DNFSB recommendation 2001-1



The project is using existing buildings and systems as much as possible to avoid unnecessary construction.

- NQA-1 2000 is the Quality Assurance standard, along with:
 - DOE Orders
 - Industry Standards
 - SRR Plans & Procedures
- A robust and compliant NQA-1 Program is essential to support operational readiness.



Tank 48H

The project will install an FBSR in 241-96H to process Tank 48 waste.

241-96H

- Significant scope performed using a design/fabrication subcontract. All on site construction work done by in house construction forces.
- Graded Approach allowances are clearly defined:
 - Design, Procurement, and Fabrication phases
- High mission risk, non-safety related components are identified as “Mission Critical” components.
 - Higher level of quality requirements compared to general non-safety related items

- **Risk:**

Project team recognized that many nuclear projects had issues with the supply chain's ability to deliver NQA-1 compliant service.

- **Action:**

Develop and execute a proactive project-specific audit and surveillance plan to verify SRR and supplier capability and performance prior to key deliverables being worked or submitted.

- Subcontractor Statement of Work (SOW) identifies applicable Supplier Quality Assurance Program Requirements
- Applicable ASME NQA-1 2000
- Additional supplier Quality Program requirements are prescribed
 - ASME NQA-1 Part I supplemental requirements (paragraphs 200-900)
 - ASME NQA-1 Part II
 - Other National Consensus Standards as identified

**TANK 48 PROJECT
QUALITY ASSURANCE PLAN**

G-PSQ-H-00002

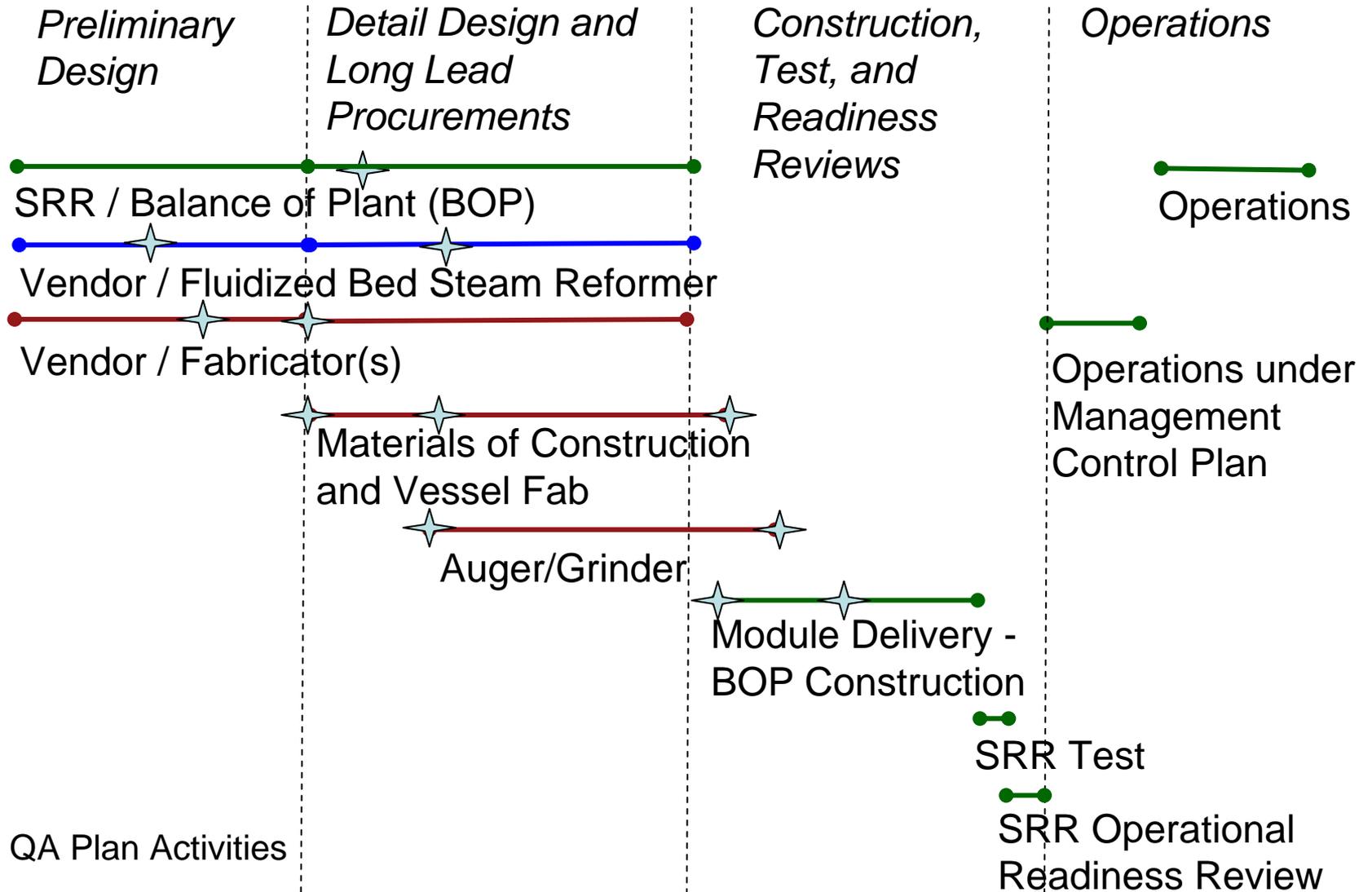
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SRR Quality Plan established planned vendor oversight assessments to ensure effective NQA-1 implementation.

- Flow-down of NQA-1 2000 requirements is monitored to assure compliance throughout the supply chain.
- Integrates engineering, procurement, construction, and quality strategies to reduce project risk.
- Assessments oversee project design and fabrication, both at SRR and supplier locations.
- Assessments and audits of suppliers are scheduled and monitored via Site Tracking, Analysis & Reporting (STAR).
- Deliberate SRR approved quality control plans to be developed for mission critical components ensuring fabrication accuracy (critical attributes, not only those code required)

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- Benchmarking Salt Waste Processing Facility (SWPF) & Idaho Waste Treatment Unit (IWTU) FBSR project for quality, engineering, and construction Lessons-Learned.
- Comparing tasks and cross-walking activities identifies lessons-learned.
- Lessons are verified learned and institutionalized through revisions to the QA Plan.



The IWTU FBSR project is nearly construction complete. Since the Tank 48 project is in Preliminary Design, there are ripe opportunities for sharing experience and lessons learned.

- Continued support for subcontractor quality program development
- Assess subcontractors for:
 - Nozzle Fabrication
 - Auger/Grinder Fabrication
 - Oxygen System Fabrication
 - Refractory
 - Coatings

- Successful projects depend on proactive QA programs.
 - Implement a graded approach
 - Integrate with all project phases
- Validate compliance
- Predict and prevent issues
 - Start early and stay vigilant
- Revise plans to incorporate lessons learned