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ENGINEERING DATA TRANSMITTAL

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|                      |                          |                     |                    |   |                             |                                   |                                     |                                   |
|                      |                          |                     |                    |   |                             |                                   |                                     |                                   |
|                      |                          |                     |                    |   |                             |                                   |                                     |                                   |
|                      |                          |                     |                    |   |                             |                                   |                                     |                                   |
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|  |       |   |   |                          |                         |                       |               |          |          |        |       |
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| 1  | 1     | Cog. Eng. D. I. Buckles   | <i>D. I. Buckles</i>  | 3/2/95                   | R3-35                   | B. B. Sidhwaney       |               |          |          | G3-17  | 3     |
| 1  | 1     | Cog. Mgr. D. P. Hughes  | <i>D. P. Hughes</i>   | 3/2/95                   | R3-35                   | C. E. Norton          |               |          |          | E6-03  | 3     |
| 1  | 1     | QA See Signature Page   |   |                          | E6-03                   | Project Files         |               |          |          | R1-28  | 3     |
| 3  | 6     | Safety P.A. Moorman   |   |                          | T6-04                   | Central Files         |               |          |          | L8-04  | 3     |
| 3  | 6     | Env. M.A. Hall  |   |                          | T5-03                   | OSTI (2)              |               |          |          | L8-07  | 3     |
| 3  | 6     | C. B. McVey   |   |                          | H4-21                   |                       |               |          |          |        |       |
| 3  | 6     | L. D. Goodwin   |   |                          | T6-12                   |                       |               |          |          |        |       |
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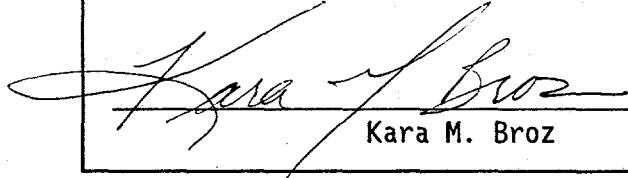
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March 2, 1995

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# PROJECT SPECIFIC QUALITY ASSURANCE PLAN

WHC-SD-W178-QAPP-001 Rev.0

W178

## 219-S SECONDARY CONTAINMENT UPGRADE

Issued By:  
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January 15, 1994

For

U.S. Department of Energy  
Richland Operations Office  
Richland, Washington

WHC Approvals:

C.E. NORTON C.E. Norton  
Cognizant Quality Engineer

2-1-95  
Date

L.D. SALSBERY L.D. Salsberry  
Level 4 - Quality Assurance Manager

2-1-95  
Date

D.I. BUCKLES D.I. Buckles  
Project Engineer

2/2/95  
Date

D.P. HUGHES D.P. Hughes  
Level 4 - Manager Projects Department

2/2/95  
Date

P. A. MOORMAN P. A. Moorman  
Safety

2/2/95  
Date

D. J. CARRELL D. J. Carrell  
Manager Environmental Policy

2/6/95  
Date

Department of  
Energy Approval:

Russell N. Warren  
Project Office  
Richland Operations Office

3/1/95  
Date

# MASTER

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## **1.0 SCOPE**

The scope of this Quality Assurance Program Plan (QAPP) is to provide a system of Quality Assurance reviews and verifications on the design, procurement and construction of the 219-S Secondary Containment Upgrade.

The reviews and verifications will be on activities associated with design, procurement, and construction of the Secondary Containment Upgrade which includes, but is not limited to demolition, removal, new tank installation, tank 103 isolation, tank cell refurbishment, electrical, instrumentation, piping/tubing including supports, pump and valves, and special coatings. The full project scope is defined in the project Functional Design Criteria (FDC), SD-W178-FDC-001, and all activities must be in compliance with this FDC and related design documentation.

## **2.0 RESPONSIBILITIES**

The Department of Energy (DOE) has the responsibility to determine the requirements for assuring quality and the contractors are responsible for installing and implementing Quality Assurance in accordance with their contractual requirements, as stated in DOE Order 5700.6c.

The onsite Architect/Engineer (A/E) is responsible for definitive design, procurement of materials, and for providing the Quality Assurance activities as defined in this plan, in specifications and drawings for all construction activities. If the A/E deems it necessary to expand or delete any of the quality requirements of this plan, all changes shall be approved by the Operating Contractor (OC). The onsite A/E is responsible for the performance of Acceptance Inspection (AI) on all construction activities. The AI shall assure all verification/acceptance documentation is accurate and submitted to the OC in a timely manner at project completion.

The construction manager shall assure that construction forces (CF) meet their obligations as identified in this Project Specific Quality Assurance Program Plan (QAPP), specifications, drawings and all other approved contract documents.

The Construction Forces Contractor (CF) is responsible for performing quality activities as required in specifications and in

drawings, and conducting the acceptance tests to demonstrate acceptability.

The OC is responsible for instrument calibrations, document reviews, surveillances, and oversight of quality activities for the overall project. The OC may impose hold or witness points for the purpose of project quality assessment at any point during the project.

### **3.0 QUALITY ASSURANCE PROGRAM REQUIREMENTS**

The Project Critical Characteristics (Attachment 1) denotes the Safety Class of systems, components and/or structures relevant to the project scope. The quality assurance program shall be commensurate with the defined safety class designation for the project.

The contractor(s) verifying, inspecting and/or accepting specification and drawing requirements on Safety Class 3 systems components or structures (occupational safety items) shall maintain a program or set of conventional industrial standards which address the following activities as a minimum:

- a) A method for control of design from definitive design, change control, configuration control, interface control, through and including as-built controls.
- b) A method for control of documentation changes commensurate with the impact of such changes.
- c) A method for control of nonconforming condition evaluations and dispositions, including the corrective actions necessary to assure implementation.

Construction Contractor(s) shall be responsible for recommending disposition of all nonconformances, including those detected by the Construction Manager or his designee, identified against contractor materials or workmanship.

Nonconforming items identified onsite are to be documented by the construction manager or his designee. Nonconforming items identified by the contractor offsite requiring a "use as is" or "repair" disposition shall be documented by the contractor on a nonconformance report and submitted to the construction Manager for approval.

Nonconforming materials, equipment or workmanship shall be immediately segregated from acceptable items if possible and clearly marked by tagging, or equivalent method, to preclude further processing until the nonconformance has been reviewed, dispositioned as directed by the construction manager, and resolved. Nonconforming materials, equipment or workmanship shall be corrected, repaired or replaced in accordance with the approved corrective action procedure. Proposed methods for corrections or repairs shall be submitted to the Construction Manager for review and approval before use.

For nonconformances that, if allowed to continue or exist without correction or repair, would affect the quality of impending work, the Construction Manager will issue a Stop Work Order. The contractor shall stop all work identified in the stop work order to prevent the performance of work before correction or repair of the nonconformance. Work (as covered in the stop work order) performed by the contractor after issue of a stop work order, but before receipt of a release order, shall be replaced. Upon satisfactory correction or repair of the nonconformance, the construction manager will issue a release order to allow construction to continue.

ECNs shall not be used to correct a nonconforming condition by change of design unless as a disposition to a nonconformance document (open item or nonconformance report with "repair" or "use as is" disposition) issued to address the nonconforming condition. ECNs issued in response to nonconformance documentation shall bear the number of the nonconformance documentation directing the issuance of the ECN."

- d) A method of identifying, defining, controlling and retaining quality relating project records.
- e) A method of identification and control of inspection activities (e.g. Inspection Planning and Hold point identification) from the definitive design phase through final project completion.
- f) A method of identification and control of testing procedure(s) and/or specification(s). Special test equipment requirements shall be identified in the design documents where appropriate.
- g) As specified in the applicable codes/standards;
  - 1) Qualified personnel performing engineering, inspections, and/or testing (e.g. Registered Professional Engineers performing design verifications, if required).

- 2) Organizational structure assuring independence of personnel performing the work and those performing the acceptance activities.
- h) Approved methods for design verifications of applicable safety classification - Class 3 items shall be established and performed where specified by the Operating Contractor.
- i) Where the use of computer codes is required in the design process; the methods for verification, validation, and control of the codes shall be established and maintained.

Construction Contractor(s) performing safety classification - Class 3 verifications, inspections, or acceptance to Project drawings and specifications shall be controlled by conventional industrial codes and standards, as specified in the approved definitive design documents.

#### **4.0 QUALITY INDEX OF IMPLEMENTING PROCEDURES**

The Architect-Engineer shall identify, in the definitive design documents, those procedures or work standards required to be prepared, followed, and/or submitted by Construction Forces and Acceptance Inspection group. As a minimum, procedures and work standards shall address QA requirements as identified on Attachment 1 of this QA Plan.

Construction Forces shall supply the required procedures or work standards or index to be utilized during the project based upon the definitive design document requirements. Submitted procedures and/or work standards shall comply with the requirements specified in the definitive design documents.

The Construction Forces's submittal of procedures or work standards required by the definitive design documents will provide the basis for selecting subject material for review, surveillance, and/or audits of the project activities by the OC, A/E, and/or AI to assure compliance to project requirements.

The Operating Contractor shall use appropriate procedures, manuals, and standards during the course of the project from the attached index of implementing procedures, "Quality Assurance Program Index", Attachment 2. The information supplied in the index will be revised only upon a complete major revision of the Manuals and/or standards. The index is intended to show the implementation of the quality assurance program by the Operating Contractor.

## ATTACHMENT 1

| Item | Description of Systems, Components, and Structures | Safety | Type of Inspection |   |   | Comments         |
|------|--|--------|--------------------|---|---|------------------|
|      |  |        | F                  | G | D |                  |
|      | <b>SITEWORK</b>                                    |        |                    |   |   |                  |
| 1.   | Demolition   | 3      |                    | X |   |                  |
|      | <b>CONCRETE</b>                                    |        |                    |   |   |                  |
| 1.   | Cast-in-Place Concrete                             | 3      |                    | X |   | U.B.C.           |
| 2.   | Foundations  | 3      |                    | X |   |                  |
|      | <b>METALS</b>                                      |        |                    |   |   |                  |
| 1.   | Structural Steel                                   | 3      |                    | X |   |                  |
| 2.   | Misc Metal   | 3      |                    | X |   |                  |
| 3.   | Metal Fabrications                                 | 3      |                    | X |   |                  |
| 4.   | Tank and liners                                    | 3      |                    | X |   | Per Welding Code |
|      | <b>THERMAL AND MOISTURE PROTECTION</b>             |        |                    |   |   |                  |
| 1.   | Insulation   | 3      |                    | X |   |                  |
| 2.   | Leak Detection                                     | 3      |                    | X |   |                  |
|      | <b>FINISHES</b>                                    |        |                    |   |   |                  |
| 1.   | Special Protective Coating                         | 3      |                    | X |   |                  |
|      | <b>PIPING</b>                                      |        |                    |   |   |                  |
| 1.   | Chemical Process Piping                            | 3      |                    | X | X |                  |
| 2.   | Piping Services                                    | 3      |                    | X | X |                  |
| 3.   | Shop Fabrications                                  | 3      |                    | X | X |                  |
|      | <b>ELECTRICAL</b>                                  |        |                    |   |   |                  |
| 1.   | Service and Distribution                           | 3      |                    | X |   |                  |
| 2.   | Heat Tracing Systems                               | 3      | X                  |   |   |                  |
| 3.   | Vault Wiring                                       | 3      | X                  |   |   |                  |
|      | <b>INSTRUMENTATION</b>                             |        |                    |   |   |                  |
| 1.   | Leak detectors and annunciators                    | 3      |                    | X |   |                  |
| 2.   | Temperature indicators                             |        |                    |   |   |                  |

**ATTACHMENT 1**

## PROJECT CRITICAL CHARACTERISTICS

**ATTACHMENT 2**  
**QUALITY ASSURANCE PROGRAM INDEX**

| BASIC REQUIREMENTS | QA REQUIREMENT TITLE                 | IMPLEMENTING PROCEDURES                        |   |  |                  |        | OTHER CODES AND STANDARDS |  |
|--------------------|--------------------------------------|--|---|--|------------------|--------|---------------------------|--|
|                    |                                      | WHC  |   | CM   | MANUALS          |        |                           |  |
|                    |                                      | QA   | Admin                                     | Eng  | Proj             |        |                           |  |
| 1.0                | Program                              | CM 4-2<br>QR 2.0<br>QI 2.1                     | CM 1-1, 2<br>CM 1-3<br>MRP 5.2            | CM 6.1<br>EP 1.12                                | CM-6-2           |        |                           |  |
| 2.0                | Personnel Training and Qualification | CM 4.2<br>QI 2.3<br>CM 4-8<br>QAI 2.1          | CM 1-3                                    |  |                  |        |                           |  |
| 3.0                | Quality Improvement                  | CM-4-2<br>QR 15                                | CM-1-1<br>CM-1-3                          | CM-6-1   | CM-6-2           |        |                           |  |
| 4.0                | Documents and Records                | CM-4-2<br>QR 5<br>QR 6<br>QR 17                | CM-1-3<br>CM-3-5                          | CM-6-1<br>EP 1.7<br>EP 1.12<br>EP 1.14<br>EP 2.2 | CM-6-2           |        |                           |  |
| 5.0                | Work Processes                       | CM 4-2<br>QR 3,5<br>QR 8<br>QR 12<br>QR 13     | CM-1-3                                    | CM-6-1<br>EP 1.0                                 | CM-6-2           | CM-6-3 |                           |  |
| 6.0                | Design                               | CM-4-2<br>QR 3<br>QR 5                         | CM-1-3<br>MRP 5.37<br>MRP 5.46<br>MRP 6.1 | CM-6-1<br>EP 1.7<br>EP 2.0<br>EP 2.2<br>EP 4.1   | CM-6-2<br>CM 7-5 |        |                           |  |
| 7.0                | Procurement                          | CM-4-2<br>QR 4<br>QI 4.2                       | CM-1-3<br>CM-2-1                          | CM-6-1   | CM-6-2           |        |                           |  |
| 8.0                | Inspection and Acceptance            | CM-4-2<br>QI 10.4<br>QR 12<br>QI 12.2<br>QR 14 | CM-1-3                                    | CM-6-1   | CM-6-2           |        |                           |  |
| 9.0                | Management Assessment                | CM-4-2<br>QI 2.7<br>QR 16                      | CM-1-1<br>CM-1-3                          |  |                  |        |                           |  |
| 10.0               | Independent Assessment               | CM-4-2<br>QR 16<br>QR 18                       | CM-1-3<br>CM-7-5<br>SECT 5,<br>9 & 12     |  | CM-6-2           |        |                           |  |