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# Plutonium Stabilization and Handling Quality Assurance Program Plan

Evelyn V. Weiss

B&W Hanford Co., Richland, WA 99352 U.S. Department of Energy Contract DE-AC06-96RL13200

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PuSH, 94-1, Quality, QAPP

Abstract: This Quality Assurance Program Plan (QAPP) identifies project quality assurance requirements for all contractors involved in the planning and execution of Hanford Site activities for design, procurement, construction, testing and inspection for Project W-460, Plutonium Stabilization and Handling. The project encompasses procurement and installation of a Stabilization and Packaging System (SPS) to oxidize and package for long term storage remaining plutonium-bearing special nuclear materials currently in inventory at the Plutonium Finishing Plant (PFP), and modification of vault equipment to allow storage of resulting packages of stabilized SNM.

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Release Approval

Release Stamp

**Approved for Public Release** 

# BWHC-9853379AR3

# ATTACHMENT

# CONSISTING OF 34 PAGES INCLUDING COVER SHEET

# **Project Hanford Management Contract**

# QUALITY ASSURANCE PROGRAM PLAN

B&W Hanford Co. and Fluor Daniel NorthWest

Plutonium Stabilization and Handling

Project W-460

HNF-SD-W460-QAPP-001 Revision 0

B&W HANFORD Co. February 1998

#### **B&W Hanford Co.**

# **Plutonium Finishing Plant**

# QUALITY ASSURANCE PROGRAM PLAN

# Plutonium Stabilization and Handling Project W-460

Approvais:	
L. J. Olguin, Director Facility Transition Projects Fluor Daniel Hanford	<u>4-22-98</u> Date
Prepared by:	
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E. V. Weiss, W460 Project Manager	Date
PFP Transition Project	
B&W Hanford Co.	
JU SCHOLTZ	4-12-98
J. W. Schultz	Date
Quality Assurance Engineer	

Balance of Approvals are Located on EDT 617726

Fluor Daniel Northwest

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#### Acronyms

A-E Architect-Engineering
AI Acceptance Inspection

ASME American Society of Mechanical Engineers BNFL British Nuclear Fuels Limited, Incorporated

BR Basic Requirement [... of ASME standard NQA-1]

BWHC B&W Hanford Co.
CFR Code of Federal Regulation
CM Construction Management

DOE-RL Department of Energy, Richland Operations Office

ENCO Enterprise Company
FDC Functional Design Criteria
FDH Fluor Daniel Hanford
FDNW Fluor Daniel NorthWest
GS General Service

MSC Major Subcontractor
NQA Nuclear Quality Assurance
OC Operating Contractor

PEP/PPM Project Execution Plan/Project Procedures Manual

PHMC Project Hanford Management Contractor PHPP Project Hanford Policies and Procedures

PFP Plutonium Finishing Plant PM Project Management PMP Project Management Plan

PuSH Plutonium Stabilization and Handling PSE Preliminary Safety Evaluation

PuSAP Plutonium Stabilization and Packaging

QA Quality Assurance

QAPD Quality Assurance Program Description
OAPP Ouality Assurance Program Plan

SAR Safety Analysis Report

SC Safety Class

SPS Stabilization and Packaging System

SRID Standards/Requirements Identification Document

SS Safety Significant

SSC Structures, Systems, and Components

WBS Work Breakdown Structure
WHC Westinghouse Hanford Company

#### 1 Introduction

1.1 Project W-460, Plutonium Stabilization and Handling, encompasses several related actions which will implement the provisions of Department of Energy (DOE) Standard DOE-STD-3013-96 (3013) for special nuclear material inventories of plutonium and plutonium/uranium oxides at Hanford's Plutonium Finishing Plant (PFP), and will comply with the commitments of Defense Nuclear Facilities Safety Board Recommendation 94-1 to stabilize and package remaining plutonium by May 2002 for safe secure storage for up to fifty years. The Project will consolidate stabilization, packaging and storage functions into a single location within the PFP facility, the 2736-Z Complex. This will allow eventual deactivation of other PFP facility areas no longer needed while maintaining all functions required for safe storage. In addition to facility modifications to be designed, constructed and installed at the 2736-Z Storage Complex, the Project provides funding for a Stabilization and Packaging System (SPS) to be procured as part of a national procurement contract administered via the DOE Oakland Operations Office (DOE Contract DE-AC03-96SF20948, more commonly the PuSAP contract).

#### 2 Scope

- 2.1 This Quality Assurance Program Plan (QAPP) identifies Project Quality Assurance (QA) program requirements for Fluor Daniel NorthWest (FDNW), an Enterprise Company (ENCO), and B&W Hanford Co. (BWHC), a Major Subcontractor (MSC) under the Project Hanford Management Contractor (PHMC). This QAPP is prepared based upon the requirements identified in the PHMC Procedure, HNF-PRO-261, "Quality Assurance Program Plans" and shall be used as the consolidated QA Program document for BWHC and FDNW. These two contractors are involved in the planning and execution of Hanford Site activities for design, procurement, demolition, construction, installation, inspection and testing for Project W-460. These efforts are for the infrastructure that will be modified, fabricated, installed, and/or constructed in order to incorporate the new SPS in the 2736-Z Complex.
- 2.2 For new project related structures, systems, and components, other than the SPS equipment procurement, specific quality requirements will be incorporated into the definitive design media and procurement documents that will be prepared, approved and issued by FDNW and BWHC, as applicable, to subtier contractors and vendors. Procurement documents will incorporate those applicable quality requirements that are required to be passed down to design, fabricate, inspect, and/or test the procured structure, system, and/or component.
- 2.3 For the interfaces between the facility and the SPS, the quality requirements will be incorporated into the BWHC definitive design media to be used by onsite and/or subtier contractors.
- 2.4 For the SPS, the applicable quality requirements will be incorporated into the FDNW

prepared procurement documents that DOE will be issuing for the SPS design, fabrication, and installation. As determined by BWHC Project Management, evaluations by BWHC and/or FDNW will be performed to ensure quality requirements have been incorporated into the SPS documentation.

#### 3 Organization Responsibilities and Authority

- 3.1 BWHC, the Operating Contractor (OC) is responsible for overview of all quality related documentation for Project design, procurement, fabrication, installation, and construction, with exception of the SPS contract, unless assigned this responsibility by the Project Manager. This overview will ensure conformance with the requirements of the Functional Design Criteria (FDC) based upon approved OC procedures.
- 3.2 Responsible organizations performing Definitive Design Engineering, Engineering and Inspection during Construction, Procurement, Construction, and Project Management shall be identified within the confines of the Work Breakdown Structure (WBS) located in the Project Management Plan (PMP) prepared by the Project Manager. Specific responsibilities and interfaces are further defined in the PMP. If responsibilities are changed during the course of the project, these changes shall be made per approved OC procedures.
  - 3.2.1 Fluor Daniel Hanford (FDH) Acceptance Inspection (AI) provides independent construction inspection for DOE-RL to verify and document the effectiveness of the construction project's quality control program. The Acceptance Inspection Plan identifies the required inspection events and AI hold points for the project. Acceptance Inspection performs the independent construction inspection/testing and source inspection/testing of construction workmanship, materials, and equipment for the purpose of evaluating conformity or nonconformity to the approved drawings and specifications. An Acceptance Inspection Plan will be required for the W-460 construction project. It is generated by FDH Acceptance Inspection and submitted to the DOE-RL Project Office for approval and subsequent transmittal to the BWHC Project Integrator prior to initiation of construction
- 3.3 The Construction Contractor(s) and Vendor(s) are responsible and held accountable for their assigned work regarding project and procurement quality. The Construction Contractor and/or Vendor shall perform, or have performed, assigned quality verification activities as specified in procurement documents and identified in drawings, specifications and other approved Project documents.

#### 4 Quality Assurance Program Requirements

4.1 Quality Assurance Program requirements are derived or based upon HNF-MP-599, "Project Hanford Quality Assurance Program Description" (QAPD), which defines the implementation of 10 CFR 830.120 and DOE Order 5700.6C. As this project affects a Nuclear Facility, the "Enforcement Applicability" of 10 CFR 830.120 is required and is addressed in the Forward of the OAPD. The ten basic sections of the OAPD form the foundation for the requirements for all quality assurance activities. Each of these OAPD sections are identified further in paragraph 4.7. Application of the quality assurance program is based on the graded approach as noted in paragraphs 4.3 and 4.4. The Project Hanford Policy and Procedures (PHPP) are the site wide policy and procedures which are utilized for BWHC activities. The OAPD, PHPPs, company level procedures, facility level documents, and this project OAPP provide specific controls for work performance. The QAPD Implementation Matrix (Attachment D) identifies applicable implementing Project Hanford/BWHC procedures for performing work on Project W-460. References to FDNW procedures are also included in the matrix. Note that only minimal QA related procedures are identified. The remaining FDNW procedures to be used are identified and/or included in the FDNW Project Execution Plan/Project Procedures Manual. The applicability of these procedures is a selective process dependent upon the work being performed and the safety significance of the activities.

#### 4.2 Quality Assurance Requirements Flowdown

Applicable QA requirements shall be passed down from BWHC to sub-tier contractors (FDNW and Construction Contractors) through statements of work, task orders, definitive design media, and/or procurement documents, as applicable. Further instruction as to the extent of QA requirements derived from the QAPD, and the implementation of these requirements, based upon a graded approach are noted in paragraphs 4.3, 4.4, and 4.6.

#### 4.3 Application of the Graded Approach

The quality management programs focus on the controls and systems necessary to ensure the output quality as required by 10 CFR 830.120 and DOE Order 5700.6C. Quality controls and systems will be applied to Project W-460 activities using a graded approach. The graded approach will be used to determine the scope and degree of rigor of the application of these requirements i.e., a process by which the level of analysis, level of documentation, level of verification and actions necessary to comply with requirements are defined. The graded application of the QA Program requirements will be achieved through an a varying combination of the following:

- (1) The nuclear safety application of the item or activity.
- (2) The level of risk and impact associated with a failure or deficiency.
- (3) The age, status, and condition of a facility, process, or an item.
- (4) The history of problems at a facility, with a process, or an item.
  - (5) The adequacy of existing controlling documentation.
- (6) The complexity of products or activities involved.
- (7) The control of potential project delays and cost if failures or deficiencies occur.

#### 4.4 Exceptions to the QAPD

No specific exceptions are taken to the requirements established by the QAPD, however, the applicability of elements of the QAPD, based upon a graded approach, has been identified in Attachment C, "Quality Assurance Requirements Matrix". Each of the QAPD, Part 2, Quality Management Processes, Implementing Requirements paragraphs identified within the OAPD have been evaluated for applicability to Project W-460 in five main areas: Project Management (PM) by BWHC, Architect-Engineering (A-E) by FDNW, Construction Management (CM) by FDNW, Construction Contractor activities by FDNW and/or a Fixed Price Contractor, and the SPS Procurement by British Nuclear Fuel Limited (BNFL). In addition, applicable references to a national standard, American Society of Mechanical Engineers, Nuclear Quality Assurance (ASME NQA-1), have been identified in the matrix for assistance in invoking specific quality requirements. These evaluations are at a high level which will require further decision making based upon the applicable structure, system, or component's Safety Class, Safety Significant, or General Service designation. As such, the more explicit applicability to each QAPD paragraph will be made during the definitive design process.

#### 4.5 QAPD Implementation Matrix

The QAPD Implementation Matrix (Attachment D) provides a roadmap from HNF-MP-0599 (QAPD) requirements to selected Project Hanford Policy and Procedures, BWHC and FDNW procedures which may be utilized as part of the Project W-460 QAPP to perform applicable work activities. Application of PHPP, BWHC, and/or FDNW procedures will be based upon the type of work being performed and the safety significance of the work.

## 4.6 Critical characteristics of products and safety classification

As part of the safety analysis process, a preliminary safety evaluation (PSE), "Preliminary Safety Evaluation for Project W-460, Plutonium Stabilization and Handling (PuSH)," HNF-SD-W460-PSE-001, has been prepared for Project W-460. The PSE identifies critical structures, systems, and components (SSCs) which are important to the safety functions (safety class or safety significant) of the project. From the PSE, critical characteristics of the SSC's are identified which will receive more rigorous quality controls and appropriate quality codes and standards selected and applied (ie., application of graded approach). The critical characteristics will be incorporated into applicable design or operations documents, verified, inspected or tested as appropriate and results evaluated and documented.

## 4.7 Elements of the Quality Assurance Program Description

#### 4.7.1 Program

Quality Assurance Programs (QAPs) shall be developed, implemented, and maintained where identified within contract documents such as: statements of work, task orders, procurement documents, and definitive design media.

Quality Assurance Program requirements for Project W-460 are to comply with applicable portions of QAPD Part 2, Section 1, "Program".

#### 4.7.2 Personnel Training and Qualifications

Personnel shall be adequately trained and qualified to perform their assigned tasks.

Training and qualification program requirements for Project W-460 are to comply with applicable portions of QAPD, Part 2, Section 2, "Personnel Training and Qualification".

#### 4.7.3 Quality Improvement

Management shall ensure quality improvement processes are instituted for the prevention and detection of quality problems.

Quality improvement processes established for Project W-460 are to comply with applicable portions of QAPD, Part 2, Section 3, "Quality Improvement".

#### 4.7.4 Documents and Records

Documentation and records control processes shall be employed for documents which control quality affecting activities.

Documents and records generated, processed, and maintained for Project W-460 are to comply with applicable portions of QAPD Part 2, Section 4, "Documents and Records".

#### 4.7.5 Work Processes

Work processes shall be established which are defined and controlled by written policies, plans, procedures, drawings, or other means to ensure the quality required for Project W-460.

Implementing procedures used on Project W-460 shall comply with applicable portions of QAPD Part 2, Section 5, "Work Processes".

#### 4.7.6 Design

Design activities shall be adequately controlled so that structures, systems, and

components meet the applicable requirements and performance criteria established for Project W-460.

Design processes instituted for Project W-460 shall comply with applicable portions of QAPD Part 2, Section 6, "Design".

#### 4.7.7 Procurement

Procurement processes shall adequately ensure structures, systems, components, or other items and services procured meet the appropriate technical and quality requirements established for Project W-460.

Procurement processes established for Project W-460 shall comply with applicable portions of QAPD Part 2, Section 7, "Procurement".

#### 4.7.8 Inspection and Acceptance Testing

Inspection and acceptance testing processes shall adequately ensure structures, systems, components, or other items procured, fabricated, or installed meet established design performance and quality requirements.

Processes for inspection and acceptance testing for Project W-460 shall comply with applicable portions of QAPD Part 2, Section 8, "Inspection and Acceptance Testing".

### 4.7.9 Management Assessment

Management assessment processes shall be established to adequately address the achievement of strategic goals and the meeting of applicable standards related to Project W-460.

Management assessment processes for Project W-460 shall comply with the applicable portions of QAPD Part 2, Section 9. "Management Assessment".

#### 4.7.10 Independent Assessment

BWHC, FDNW and applicable sub-tier contractor personnel are responsible for cooperating with FDH independent assessment personnel in planning, preparation, and performance of assessments. BWHC and lower tier contractor management, as applicable, are responsible for promptly correcting problems found by independent assessments and ensuring corrective action is effective.

Independent assessment processes for Project W-460 shall comply with the applicable portions of QAPD Part 2, Section 10. "Independent Assessment".

#### 5 References

- DNFSB, 1994, "Recommendation 94-1 to the Secretary of Energy, pursuant to 42 USC §2286 a(5) Atomic Energy Act of 1954, as amended," Defense Nuclear Facilities Safety Board, Washington, D.C.
- DOE, 1996b, "Stabilization and Packaging System," Contract DE-AC03-96SF20948 as amended, U. S. Department of Energy - Oakland Operations Office, Oakland, California.
- DOE, 1996c, DOE-STD-3013-96, "Criteria for Safe Storage of Plutonium Metals and Oxides," U. S. Department of Energy, Washington, D.C.
- DOE Order 4700.1, "DOE Project Management System," U. S. Department of Energy, Washington, D.C.
- DOE Order 5700.6C, "Quality Assurance," U. S. Department of Energy, Washington, D.C.
- FDH, 1998, Project Hanford Management Contract, "Project Hanford Policy and Procedure System Reference Map," HNF-MD-034, Revision 0, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1997, Project Hanford Management Contract, "Project Hanford Quality Assurance Program Description," HNF-MP-599, Revision 0, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1997, Project Hanford Management Contract, "Quality Assurance Program Plans," HNF-PRO-261, Revision 0, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1996, "Functional Design Criteria for Project W-460, Plutonium Stabilization and Handling (PuSH)," HNF-SD-W460-FDC-001, Revision 0, Fluor Daniel Hanford Company, Richland, Washington.
- FDH, 1997, "Preliminary Safety Evaluation for Project W-460, Plutonium Stabilization and Handling (PuSH)," HNF-SD-W460-PSE-001, Revision 0, Fluor Daniel Hanford Company, Richland, Washington.

- FDNW, 1997, "Facility Stabilization Project Execution Plan and Project Procedures Manual," B&W Hanford Company, Facility Stabilization Project, Contract 651002, Revision 0, Fluor Daniel NorthWest, Richland, Washington.
- United States Code of Federal Regulations 10 CFR 830.120, "Nuclear Safety Management Quality Assurance," Washington, D.C.
- WHC, 1994, "Plutonium Finishing Plant Standards/Requirements Identification Document," WHC-SD-MP-SRID-003, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1995, "Plutonium Finishing Plant Final Safety Analysis Report," WHC-SD-CP-SAR-021, Westinghouse Hanford Company, Richland, Washington.

# ATTACHMENTS

# ATTACHMENT A

# PROJECT CRITICAL CHARACTERISTICS FOR PROJECT W-460, PuSH

ITEM	STRUCTURE, SYSTEM, OR	PRELIM. SAFETY	TYPE OF INSPECTION			COMMENTS
ID .	COMPONENT **	CLASSIFICATION	F	G	D	
1	2736-ZB Building Structure	SC			х	
2	2736-Z Building Structure	sc			х	
3	2736-Z Building Storage Cubicles and Canister Holders	SC SC			х	
4	SPS Glovebox Structure and Floor Anchors	SC			х	Design, fabrication and installation criteria for the SPS shall be designated in Procurement Specification for DOE Contract.
5	SPS Exhaust System HEPA Filters, HEPA Filter Housing and Ductwork up to 2736-ZB Roof Penetration	SC .			Х	
6	2736-ZB Building Final HEPA Filters, HEPA Filter Housing, and Ductwork up to HEPA Filter Housing	SC			X	,
7	2736-Z Building exhaust System HEPA Filters, HEPA Filter Housing, and Ductwork up to HEPA Filter Housing	sc			х	
8	Vault Ventilation Supply Backdraft Damper or Supply Filters	SC			х	
9	Construction Door on East Wall of 2736-ZB	SC			Х	
10	Cutting Tools and Electrical Equipment Inside the SPS Material Preparation Area	SC	Х			
11	Facility CAMs and Vault Air Sampling System	SS	х			
12	Furnace Cooling Jacket, IF Water Cooling is used	SS	х			
13	Moisture Detection in SPS Gloveboxes	SS	х			
14	Drier on SPS Supply Air	SS .	X	L		
15	Criticality Alarms	SS	X		L	

ITEM ID	STRUCTURE, SYSTEM, OR COMPONENT **	PRELIM. SAFETY CLASSIFICATION	TYPE OF INSPECTION		ION	COMMENTS
16	SPS Glovebox Ventilation Kicker Fan and Controls	SS	Х			
17	SPS Glovebox Confinement Boundary (e.g., Windows, Gloveports, Sphincter Seals, Entry Isolation Doors and their Controls)	ss			х	
18	SPS Glovebox Pressure Indication and Alarms	SS	Х			
19	SPS Dump Valves and Interlocks to Glovebox Pressure Transducers	SS	х			
20	Regulators and Pressure Relief Valves (PRVs) on Compressed Utility Gas Supplies to SPS	SS	χ			
21	Separate Process Exhaust Stack	SS	<u></u>		Х	
22	Stack Monitoring	SS	х			Government Furnished Equipment
23	Calorimeters/Equilibration Bath	TBD	х			Government Furnished Equipment

#### LEGEND:

D	Detailed (Inspection)	See Attachment B
F	Functional (Inspection)	See Attachment B
G	General (Inspection)	See Attachment B
GS	General Service	
SC	Safety Class	

Safety Significant To Be Determined

#### NOTES:

SS

TBD

- 1) \*\* Information based upon the SSC identified in the Preliminary Safety Evaluation, HNF-SD-W460-PSE-001, Rev.
- 2) Unless Specified Otherwise, Remaining Structures, Systems, and/or Components are considered as General Service (e.g., Robotics for Handling/Transport of 3013 Containers, Modular Office Trailer: Including Structural Components, Utilities, etc.)

#### ATTACHMENT B

#### TYPES OF INDEPENDENT VERIFICATION AND INSPECTION

Specific rules covering all phases of inspection cannot be prescribed due to the variety and types of contracts and subcontracts, and the degree of responsibility assigned to the operating contractor, architect-engineer, construction contractors, and individual vendors. In general, inspection activities are divided into three categories: Functional, General and Detailed.

- 1. Functional Inspection. Performed to determine overall compliance with contract drawings and specifications. Functional Inspection may vary from inspection of minor items to extensive testing of operating equipment (which must be provided for in the contract). It may also serve in making initial determination of the adequacy of the design effort. The field element and the operating contractor participate in functional inspections from the viewpoints of owner and user.
- General Inspection. The fundamental and comprehensive inspection to ascertain that workmanship and kind and quality of materials conform to the contract specifications.
- 3. <u>Detailed Inspection.</u> Includes, but is not limited to, verification of details, such as checking location and size of reinforcing bars, maintaining records of concrete batching operations, verifying the use of proper welding rods, checking riveting and welding, and performing other inspection for quality assurance purposes. Detailed inspections are carried out from initial construction operations and extend through all construction stages.

# ATTACHMENT C QUALITY ASSURANCE REQUIREMENTS MATRIX

	HNF-MP-599	Related	PROJECT PARTICIPANTS					
QAPD Part 2 Requirements by Paragraph		Standard NQA-1	PM BWHC	A-E FDNW	CM FDNW	Construction Contractor FDNW/Fixed	SPS Procurement	
	Including Keywords					Price Price	BNFL	
SECTION	1 185 345 4							
3.1 **	Structure, QA Program	•						
3.2	QA Procedures		1					
3.3.1	.QA Program Plans		/					
3.3.2		Basic Requirement (BR) 2	1	1	1	1	·	
3.3.3			/	1	1	/	1	
3.3.4 **								
3.3.5			1	/	1	/	1	
3.4.1 **	QA Requirements Flowdown							
3.4.2			1	1	1	/	1	
3.5	Quality Planning		1					
3.6.1	Organization, Responsibilities, Interfaces	BR 1	1	/	1	1	1	
3.6.2		18-1 2.1	1	1	1	/	1	
3.6.3		18-1 3.2	1					
3.7	Readiness Review		1					

	VIVID VID 200	2 1 1	PROJECT PARTICIPANTS					
	HNF-MP-599 QAPD Part 2	Related Standard NQA-1	PM BWHC	A-E FDNW	CM FDNW	Construction Contractor	SPS	
	Requirements by Paragraph Including Keywords					FDNW/Fixed Price	Procurement BNFL	
3.8.1	Stop Work Authority		/	1	1	/	/	
3.8.2			/		1			
3.9.1	Graded Application	BR 2	1	1	1	<b>/</b>	/	
3.9.2 (all)			1	1	1	1	1	
3.9.3			1	1	1	1	1	
3.9.4			1	1	1	1	1	
3.9.5			1					
3.9.6			/					
SECTION	2.		·		* 1.4 1.4	: 		
3.1	Training and Qualification Program		1					
3.2.1	Training and Indoctrination	BR 2	/	/	/	1	1	
3.2.2		BR 2	/	/	1	/	1	
3.2.3								
3.2.4		BR 2, 2S-4	/	/	/	/	1	
3.2.5								
3.2.6								
3.2.7								
3.2.8								
3.3.1	Qualification and Certification							

		Related	PROJECT PARTICIPANTS						
	HNF-MP-599 QAPD Part 2 Requirements by Paragraph Including Keywords		PM BWHC	A-E FDNW	CM FDNW	Construction Contractor FDNW/Fixed Price	SPS Procurement BNFL		
3.3.2			/	1	1	/	1		
3.3.3	·	2S-1, 2S-2 2.3		1		1	✓ .		
3.3.4		2S-1 2.1		1	·	1	1		
. 3.4	Training and Qualification Records		1	1	/	<b>/</b>	1		
SECTION	3								
3.1.1	Deficiency Identification	BR 16	1	/	/	/	1		
3.1.2									
3.2.1	Corrective Action Management	BR 16	1	/	1	1			
3.2.2		BR 16	1	1	1	1			
3.3.1	Nonconformance Control	BR 15, 15S-1 4.1, 1S-1 2.3	1		1	1	<b>/</b>		
3.3.2				,, <del></del>	1	1	1		
3.3.3		15S-1 2(a)			1	/	1		
3.3.4		158-1 3			/	1	1		
3.3.5	•	15S-1 4.3	1	/	/	· ·	1		
3.3.6		15S-1 4.4		/	/	1	1		
3.3.7		158-1 4.5			/	1	/		
3.3.8					/	/	1.		
3.3.9					/	1	1		

	TIME MD 500	70.11	PROJECT PARTICIPANTS					
HNF-MP-599 QAPD Part 2 Requirements by Paragraph Including Keywords		Related Standard NQA-1	PM BWHC	A-E FDNW	CM FDNW	Construction Contractor FDNW/Fixed Price	SPS Procurement BNFL	
3.4.1 **	Performance Data Analysis							
3.4.2 ** .								
3.4.3 **								
3.4.4	•	BR 16	1					
3.4.5		_	1					
3.4.6		BR 16	1					
SECTION								
3.0	Documents and Records		1					
3.1.1	Documents	6S-1 2	1	/		1	<b>/</b>	
3.1.2		BR 6	1	1		/	<b>/</b>	
3.1.3		BR 6	1	/	/	/	/	
3.1.4		6S-1 3	1	7	1	1	. 🗸	
3.1.5				1				

	HNF-MP-599	Related	PROJECT PARTICIPANTS					
	QAPD Part 2  Requirements by Paragraph Including Keywords		PM BWHC	A-E FDNW	CM FDNW	Construction Contractor FDNW/Fixed	SPS Procurement BNFL	
						Price	DINEL	
3.2.1	Records	BR 17	1	/	1	1	/	
3.2.2					1	/	/	
3.2.3		17S-1, 2.8, 2.9, 4, 5	1	1	1	1	·	
3.2.4			1					
3.2.5				1		<b>✓</b>		
SECTION	5	1 1 459 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				· · · · · ·		
3.1.1	Work Process Documents	BR 5	1	1	1		1	
3.1.2				1	/	1		
3.1.3	•				/	. /	/	
3.1.4			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	/	1		/	
3.1.5				1	/	/	V	
3.2	Special Processes	BR 9					/	
3.3.1	Identification and Control of Items	BR 8, 8S-1 3.1			/	1	/	
3.3.2		BR 14			/	/	/	
3.3.3		8S-1 2.3			1	/	/	

	HNF-MP-599	Related	PROJECT PARTICIPANTS					
	QAPD Part 2 Requirements by Paragraph		PM BWHC	A-E FDNW	CM FDNW	Construction Contractor	SPS Procurement	
	Including Keywords					FDNW/Fixed Price	BNFL	
3.4.1	Handling, Shipping, and Storing	BR 13			1	1	1	
3.4.2		13S-1 2			1	1	✓	
3.4.3		13S-1 4			1	/	/	
3.5	Process Monitoring or Data Collection Instruments	BR 12		1		1	1	
3.6	Control of Computer Software	11S-2	/	1	1	/	1	
SECTION					e sali i a Heas			
3.1	Design Input		/	1			1	
3.1.1		BR 3, 3S-1 2	/	/			1	
3.1.2		BR 3	/	/			1	
3.1.3		3S-1 2	/	1			1	
3.2.1	Design Process			/			/	
3.2.2				1			1	
3.2.3		38-1 6		/			1	
3.2.4			/					
3.2.5		38-1 6	/	/	/	/	1	
3.2.6			/	1			/	
3.2.7		3S-13		/			1	
3.2.8	(con't) Design Process	38-1 3.1		1			/	

	YANT MD 500	Related	PROJECT PARTICIPANTS				
	HNF-MP-599 QAPD Part 2 Requirements by Paragraph Including Keywords		PM BWHC	A-E FDNW	CM FDNW	Construction Contractor FDNW/Fixed Price	SPS Procurement BNFL
3.2.9		3S-1 3.1		/			✓ ·
3.2.10				1			1
3.2.11				1			1
3.3.1	Design Verification	3S-1 4.2		1			/
3.3.2		3S-1 4		1			/
3.3.3		BR 3, 3S-1 4		1			/
3.3.4		3S-1 4.1		1			✓ ·
3.4.1	Design Changes	BR 3, 3S-1 5	1 .	1	1	1	1
3.4.2			1	1	1	1	1
3.5	Design Documentation and Records	38-17	<b>/</b>	1			/
3.6	Computer Software	38-1 3.1	1	1		/	1
SECTION	SECTION 7						
3.1	Procurement Planning	78-1	1	1	1	1	✓
3.2.1	Content of Procurement Documents	4S-1 2	1	1	1	1	1
3.2.2		4S-1 3	1	1	1	1	/
3.2.3		78-1 7, 48-1 4	1	1	1	✓✓	1

		Related			PROJECT P.	ARTICIPANTS	
	HNF-MP-599 QAPD Part 2 Requirements by Paragraph		PM BWHC	A-E FDNW	CM FDNW	Construction Contractor	SPS Procurement
	Including Keywords					FDNW/Fixed Price	BNFL
3.3.1	Supplier Evaluation and Selection	7S-1 3.1		1	1	/	1
3.3.2			1	1	1	1	/
3.3.3		78-15	1	1	1	1	/
3.4	Control of Supplier Nonconformance	78-19	1	. 1	1	1	/
3.5.1	Acceptance of Items and Services	7S-1 8.1	. 1	1	1	/	1
3.5.2		7S-1 8.1	/	/	/	1	1
3.6	Commercial Grade Items	7S-1 10	/	1	1	· · · · · · · · · · · · · · · · · · ·	1
3.6.1			1	1	1	✓	<i>✓</i>
3.6.2	·		1	1	1	1	1
3.6.3			/	1	1	1	·
3.7	Control of Supplier-Generated Documents	7S-1 6	1	1	1	/	<b>/</b>
SECTION	18				i spr		
3.1.1	Inspection and Acceptance Testing Planning	10S-1 2, 11S-1 3		1	1	<b>/</b>	1
3.1.2		10S-1 2, 11S-1 2		1			<b>/</b>
3.1.3		10S-1 2, 11S-1 2	1	1	1	<b>√</b>	1
3.2.1	Inspection and Acceptance Testing Process	108-1 3.2		1		1	/
3.2.2		BR 10, 10S-1 2		1		1	1

	TINE MD 500				PROJECT P	ARTICIPANTS	
HNF-MP-599 QAPD Part 2 Requirements by Paragraph Including Keywords		Related Standard NQA-1	PM BWHC	A-E FDNW	CM FDNW	Construction Contractor FDNW/Fixed Price	SPS Procurement BNFL
3.3	Inspection and Acceptance Testing Records	BR 10, 10S-1 8, BR 11, 11S-1 4 & 5		1		✓	<b>√</b>
3.4	Inspection and Acceptance Testing Status	BR 14				1	
3.5	Calibration of Measuring and Test Equipment	BR 12		1		/	✓
SECTION	19						
3.1 (all)	Management Assessments	BR 2	1	1	1	/	<b>√</b>
3.2	Corrective Actions	BR 16	1	. /	1	<b>√</b> 200	1
SECTION	V 10		i .				
3.1.1	Focus of Independent Assessments	BR 18	1				
3.1.2			1				
3.2.1	Performance of Independent Assessments	BR 1, 18S-1 3.2	/	·			
3.2.2			1.				
3.2.3		BR 18	1				

#### Notes:

- 1) Paragraph references which are missing from Matrix have been determined to not have applicable requirements, hence they have been eliminated.
- 2) Items identified with "\*\*" have been determined to apply at a higher level and will not apply at the Project level.
- 3) Related Standard (NQA-1) is to be used as a Guide for applying the specific QAPD paragraph reference.
- 4) The use of the Matrix is as a Guide towards applying Quality Requirements to Safety Class Items. The Graded Approach shall be used for these features, as determined by the particular structure, system, or component involved. Further evaluation by a Graded Approach is to be used when evaluating Quality Requirements to be applied to Safety Significant or General Service structures, systems, or components.

# ATTACHMENT D QAPD IMPLEMENTATION MATRIX

NOTE: This implementation matrix is based on a cross-reference between the Controlled Manual (CM) System and the Project Hanford Policy and Procedure (PHPP) System (ref.: HNF-MD-034, Project Hanford Policy and Procedure System Reference Map). This cross-reference is referred to as the CM-Map. The procedures in this matrix may change; therefore, it may be necessary for the user of this document to check the accuracy of these references, as this listing is not all-inclusive. Several Quality Assurance specific Contractor Procedures (FDNW) have been identified; for more complete information, it may be necessary for the user of this document to review the BWHC Contract 651002, Facility Stabilization Project, Project Execution Plant/Project Procedures Manual.

	QAP	D IMPLEMENTATION MATRIX			
PROJECT HANFORD QAPD PART 2	IMPLEMENTING PROCEDURES				
	Pı	oject Hanford Procedures	(	Contractor Procedures	
SECTION 1,PROGRAM  Quality Assurance Program Plans  Project Hanford QA Requirements Flowdown Quality Planning  Organization, Responsibilities, and Interfaces Readiness Reviews  Stop Work-Authority Graded Application of Project Hanford QA  Program	HNF-PRO-055, HNF-PRO-261, HNF-PRO-704, FDH-MD-035,	Startup and Restart of Facilities Quality Assurance Program Plans Hazard and Accident Analysis Process Shutdown and Stop-Work Direction	134.042.0110, 134.042.0125, 134.042.0135, 134.042.0145, 134.042.0140, Note: See FDN	Risk Evaluation and Graded Corrective Action Stop Work Orders Quality Assurance Financial Planning Project Specific Quality Assurance Program Plan Projects/Quality Assurance Interface W PEP/PPM for Other Procedures	
SECTION 2, PERSONNEL TRAINING AND QUALIFICATION Project Hanford Training and Qualification Program Training and Indoctrination Qualification and Certification Training and Qualification Records	HNF-PRO-056, HNF-PRO-263, HNF-PRO-329, HNF-PRO-347, HNF-PRO-538;	Drill Program Policy Qualification and Certification of Inspection and Test Personnel Radiological Training Employee Fire Protection Training Criticality Safety Training	134.042.0032, 134.042.0160, Note: See FDN	Training/Qualification of Audit and Surveillance Personnel Qualification of Quality Engineer Personnel  W PEP/PPM for Other Procedures	

QAPD IMPLEMENTATION MATRIX							
PROJECT HANFORD QAPD PART 2	IMPLEMENTING PROCEDURES						
	Project Hanford Procedures	Contractor Procedures					
SECTION 3, QUALITY IMPROVEMENT Deficiency Identification Corrective Action Management Nonconformance Control Performance Data Analysis Control of Suspect/Counterfeit Items	HNF-PRO-006, Identifying/Reporting a DOE Nuclear Safety Requirement Noncompliance HNF-PRO-052, Corrective Action Management Critique Procedure Reporting Occurrences and Processing Operations Information HNF-PRO-063, Deficiency Tracking System HNF-PRO-294, Nonconforming Item Reporting and Control Control of Suspect/Counterfeit Items	134.042.0031, Corrective Action Management 134.042.0110, Risk Evaluation and Graded Corrective Action 134.042.0115, Lessons Learned 134.042.0120, Corrective Action Requests  Note: See FDNW PEP/PPM for Other Procedures					
SECTION 4, DOCUMENTS AND RECORDS Documents Records	HNF-PRO-208, Records Management - General HNF-PRO-211, Records Management Program HNF-PRO-214, Record Inventory and Disposition Schedules HNF-PRO-222, Quality Assurance Records HNF-PRO-232, Project and Task Document Management HNF-PRO-233, Review and Approval of Documents HNF-PRO-460, Software Document Control	134.042.0185, Inspection Document Reviews 134.042.0190, Final Acceptance Review 000.100.1212, Project Close-out  Note: See FDNW PEP/PPM for Other Procedures					

	QAPD IMPLEMENTATION MATRIX					
PROJECT HANFORD QAPD PART 2	RT 2 IMPLEMENTING PROCEDURES					
	Project Hanford Procedures	Contractor Procedures				
SECTION 5, WORK PROCESSES Work Process Documents Identification and Control of Items Handling, Shipping, and Storing	HNF-PRO-062, Identifying and Resolving Unreviewed Safety Questions HNF-PRO-072, Plant Instrumentation and Equipment Status Labeling HNF-PRO-129, Controlling Spare Parts and Spare Equipment Inventory HNF-PRO-134, Identifying and Controlling Materials, Parts and Components HNF-PRO-135, Receiving, Inspection, Storage, Issuance and Return of Contractor Procured ASME Code Material HNF-PRO-297, Inspection, Test, and Operating Status HNF-PRO-334, Criticality Safety: General Requirements HNF-PRO-351, System Testing/Inspecting and Maintenance Frequencies HNF-PRO-443, Facility Deactivation Requirements HNF-PRO-488, Repair of ASME-Coded Pressure Systems HNF-PRO-551, Construction Program	Note: See FDNW PEP/PPM for Other Procedures				
SECTION 6, DESIGN Design Input Design Process Design Verification Design Changes Design Documentation and Records Computer Software	HNF-PRO-097, Engineering Design and Evaluation HNF-PRO-227, Engineering Document Identification HNF-PRO-239, Design Analysis Reports HNF-PRO-240, Engineering TBDs/HOLDs HNF-PRO-241, Engineering Specification Requirements HNF-PRO-242, Engineering Drawing Requirements HNF-PRO-243, Interface Control Requirements HNF-PRO-244, Engineering Data Transmittal Requirements HNF-PRO-255, Developing and Maintaining SRIDs HNF-PRO-317, Engineering Release and Approval Requirements	134.042.0150, Quality Engineering-Design Review 134.042.0155, Developing Quality Assurance Criteria for Design Documents  Note: See FDNW PEP/PPM for Other Procedures				

	QAP	D IMPLEMENTATION MATRIX				
PROJECT HANFORD QAPD PART 2	IMPLEMENTING PROCEDURES					
	P	roject Hanford Procedures	Contractor Procedures			
(continued)	HNF-PRO-430,	Safety Analysis Program				
SECTION 6, DESIGN	HNF-PRO-431,	Verification and Validation				
Design Input	HNF-PRO-432,					
Design Process	HNF-PRO-437,					
Design Verification	HNF-PRO-439,	Supporting Document Requirements				
Design Changes	HNF-PRO-440,	Engineering Document Change Control				
Design Documentation and Records	HNF-PRO-441.	Requirements Engineering Procurement Waiver				
Computer Software	HNF-PRO-441,	Requirements				
	HNF-PRO-442.	Development Control Requirements				
	HNF-PRO-445,	Design Verification Requirements				
	HNF-PRO-446.	Testing Requirements				
		Procurement of Safety Class Items and				
	, , ,	Management of Spares	•			
	HNF-PRO-448,	Interim Design Authority/Design Agent				
•		Engineering Process Requirements				
	HNF-PRO-464,	Software Control				
	HNF-PRO-561,	Functional Design Criteria				
	HNF-PRO-569,	Baseline Change Control				
	HNF-PRO-700,					
		Requirements				
	HNF-PRO-701,					
	HNF-PRO-702,	Safety Analysis Process - Facility Change or				
		Modification				
	HNF-PRO-703,	Safety Analysis Process - New Project				
		Hazard and Accident Analysis Process				
	HNF-PRO-705,	3 3				
		Review and Approval				

QAPD IMPLEMENTATION MATRIX						
PROJECT HANFORD QAPD PART 2		IMPLEMENTING PROCEDURES				
	Pr	oject Hanford Procedures	C	Contractor Procedures		
SECTION 7, PROCUREMENT Procurement Planning Content of Procurement Documents Supplier Evaluation and Selection Control of Supplier Nonconformance Acceptance of Items and Services Commercial Grade Items Control of Supplier-Generated Documents Control of Suspect/Counterfeit Items	HNF-PRO-123, HNF-PRO-186, HNF-PRO-268, HNF-PRO-301, HNF-PRO-441, HNF-PRO-444, HNF-PRO-447, HNF-PRO-706, HNF-PRO-707,	The Written Requisition Process Preacquisition Planning Requirements Preparing a Statement of Work for Services Control of Purchased Items and Services Control of Suspect/Counterfeit Items Engineering Procurement Waiver Requirements Vendor Information Requirements Procurement of Safety Class Items and Management of Spares PHMC Acquisition System Requirements PHMC Acquisition Authority	134.042.0165, 134.042.0170, 134.042.0175, 134.042.0195, Note: See FDN	Supplier Evaluation (Project Hanford Work) Source Surveys Procurement Document Review Procurement Support Planning W PEP/PPM for Other Procedures		
SECTION 8, INSPECTION AND ACCEPTANCE TESTING Inspection and Acceptance Planning Inspection and Acceptance Process Inspection and Acceptance Testing Results Inspection and Testing Status Calibration of Measuring and Test Equipment	HNF-PRO-263, HNF-PRO-283, HNF-PRO-286, HNF-PRO-446, HNF-PRO-489, HNF-PRO-490,	Qualification and Certification of Inspection and Test Personnel Control of Inspections Test Control Testing Requirements Third Party Inspections Control of Measuring and Test Equipment and Non-Data Test Equipment	134.042.0155, Note: See FDN	Developing Quality Assurance Criteria for Design Documents W PEP/PPM for Other Procedures		
SECTION 9, MANAGEMENT ASSESSMENT Management Assessments Corrective Action	HNF-PRO-052, HNF-PRO-246,	Corrective Action Management Management Assessment	134.042.0130, Note: See FDN	Management/Self-Assessments W PEP/PPM for Other Procedures		

B&W Hanford Co.  a McDermott company			BW
То	Mr. L. J. Olguin, Project Director Facility Stabilization, FDH N1-26		TOPMOLOG
From	F. R. Crawford, Senior Director Plutonium Finishing Plant Project  T5-50	File No. Or Ref.:	BWHC-9853379AR3
Subj	SUBMITTAL OF HNF-SD-W460-QAPP-001, PLUTONIUM STABILIZATION and HANDLING QUALITY ASSURANCE PROGRAM PLAN	Date:	April 22, 1998

This letter forwards B & W Hanford Company's "PLUTONIUM STABILIZATION and HANDLING QUALITY ASSURANCE PROGRAM PLAN", HNF-SD-W460-QAPP-001, Rev.0.

This Quality Assurance Program Plan (QAPP) identifies project quality assurance requirements for all contractors involved in the planning and execution of Hanford Site activities for design, procurement, construction, testing and inspection for Project W-460, Plutonium Stabilization and Handling.

If you have any questions, please contact the W-460 project manager, Ms. E. V. Weiss, on 372-1109.

Attachment

evw:dg

# CORRESPONDENCE DISTRIBUTION COVERSHEET

Author

Addressee

Correspondence No.

E. V. Weiss, BWHC

L. J. Olguin, FDH

BWHC-9853379AR3

Subject: SUBMITTAL OF HNF-SD-W460-QAPP-001, PLUTONIUM STABILIZATION and HANDLING QUALITY ASSURANCE PROGRAM PLAN

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