

Quality Assurance Procedure

VERIFICATION

PQAP-V

Prepared for

PANDA PROJECT AT PSI

Revision Status						
Rev.	Prepared/ Revised by	Reviewed and Approved by			Issue Date	Remarks
		G-15QM	G-PM	P-APM		
0	T. Singh	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	31.1.95	
1	T. Singh/ J. Torbeck	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	5/1/95	Inputs from PSI

Ref: PANDA DRF No. T10-00005

VERIFICATION**1. PURPOSE**

The purpose of this procedure is to implement the applicable requirements of GE EOP 42-6.00, "Independent Design Verification" and 40-7.00, "Design Reviews" for verification of the PANDA test facility configuration and testing activities.

2. SCOPE

The requirements of this procedure applies to activities performed by Paul Scherrer Institute (PSI) on the PANDA project.

3. DEFINITIONS

- 3.1 *Verification* - is an activity to assure and document the correctness, adequacy and completeness of PANDA engineering/test documentation (hereafter referred to as "design/document" in this procedure).
- 3.2 *PSI Verifier* - is a qualified individual (by background, knowledge, or experience), other than the person responsible for design, who performs an independent verification to assure the correctness of a design/document or change to the verified design/document. The G-PM, by approval of the verification, assures adequacy of the independence of the verification.
- 3.3 *Checking* - applies to ensuring the correct transfer of information from one document(that is verified) to another document (which is being verified).
- 3.4 *Individual Design Review* - formal, design adequacy evaluations performed by a knowledgeable person not directly responsible and accountable for the design.
- 3.5 *Team Design Review* - formal, design adequacy evaluations performed by a team of knowledgeable persons not directly responsible and accountable for the design document.
- 3.6 *Alternate Calculations* - is the use of alternate methods to verify correctness of the original calculations.
- 3.7 *PSI PANDA Project Manager* - the PSI individual identified as the PSI Subproject leader for the PANDA project.
- 3.8 *PSI Responsible Engineer* - the PSI individual who initiates or prepares a document.

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- 3.9 *GE Project Manager* - the GE individual identified as the Project Manager who is responsible for GE SBWR Test Operations and Analysis.

4. REQUIREMENTS

- 4.1. Verifications will address the accurate documentation of facility configuration and test performance. Verifications shall be performed on the following:
- calculations affecting test results
 - measurements appearing on as-built drawings
 - changes to piping, valve, instrument, and tank arrangements
 - instrument preparations and data acquisition system outputs.
 - test initial conditions (levels, pressures, temperatures, valve lineups)
 - specifications, drawings, and test reports to be issued in accordance with PQAP-DC, Document Control
- 4.2 Activities, configuration, and procedure changes for testing or which might affect subsequent testing shall be verified for acceptability of impact due to differences from the original baseline configuration or alignment.
- 4.3 Verification records shall document (See Attachment 3) the following:
- scope
 - inputs
 - method
 - outputs
 - closure of all open items or questions arising from the verification process statement of the adequacy of the object of verification sign offs with the name and dates for the originator, verifier, and management approval

(See Attachment 4 for an example of a completed Verification Sheet)

- *4.4 The documentation and records which provide evidence that verification method and activities were performed shall be maintained in the Test File in accordance with PQAP-R.
- 4.5 Verification by team design reviews is the responsibility of GE and will be performed in accordance with the requirements of the EOP 40-7.00.

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5. PROCEDURE AND RESPONSIBILITIES

5.1 The Verification process overview is shown in Attachment 1.

5.2 PSI Responsible Engineer (P-RE)

5.2.1 Assure that all new design/documents and changes to verified design/documents are verified before issue or application as numeric revision documents. Data transmitted in noncontrolled documents to others for use shall also be verified.

5.2.2 Determine when the design/document is ready to be verified.

5.2.3 Determine and document the scope and method of verification to be used to confirm that the design/document meets its specified requirements or the requirements of its application. Refer to Attachment 2 for applicable design/document verification guidelines. For drawings, identify any independent checking required to detect drawing discrepancies which could affect design/document adequacy.

5.2.4 Select a Verifier who:

- a. qualifies by knowledge and experience to perform the verification, and
- b. has sufficient independence as approved by the G-PM.

NOTE

The Verifier should be an individual other than the person responsible for the design/document, but may be from the same organization. (The Responsible Engineer, Verifier and GE Project Manager must be mutually exclusive, i.e. Three different people).

5.2.5 When the design/document or design/document change is complete, provide a verification package to the Verifier. The package shall consist of the information the Verifier needs to perform the verification, and includes:

- a. The design/document results (including assumptions, calculations, design/document related notes and reports, etc.) to be verified;

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- b. The documented scope and method of verification including specification of any necessary additional checking of documents;
 - c. Identification of the design/document requirements, including a list of input documents;
 - d. Selection and identification of the detailed information on drawings to be checked by the independent Verifier;
- 5.2.6 Provide clarification, additional information, or necessary corrections to the design/document documentation as requested by the Verifier. When changes are made as a result of technical or verification reviews, consider what verification these changes require, and have the verifications performed.
- 5.2.7 Assure that the verification statement made by the Verifier is either on the Engineering Review Memorandum, Engineering Change Notice, or verification form (see Attachment 3) and is filed in the Test File.
- 5.2.8 Assure that all pertinent verification data generated for inclusion in a Test File are recorded per the requirements of PQAP-R, QA Records
- 5.3 * **PSI Verifier**
- 5.3.1 Upon receipt of the verification package from the Responsible Engineer, perform the verification within the scope and method established by the Responsible Engineer to assure that the design/document satisfies its requirements. Utilize applicable design/document verification guidelines contained in Attachment 2. If the Verifier judges that the established scope, method, and/or design interfaces are not sufficient to verify design/document adequacy, the Verifier shall discuss and resolve them with the P-RE.
- 5.3.2 Obtain additional information or necessary corrections from the P-RE, as required.
- 5.3.3 When the design/document is verified, the Verifier shall prepare and sign a verification statement that includes:
- a. Identification of the design/document being verified.
 - b. Description of the verification performed, including scope, method, inputs, and outputs.

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- c. Any open items resulting from the design/document verification process have been resolved and closed.
- d. Statement of design/document adequacy made by the Verifier from results of the verification.
- e. The name of the Verifier and the date of verification.

5.3.4 Return the verification package and the verification statement to the P-RE

5.3.5 If the design/document cannot be verified, document the reason and return the verification package to the P-RE.

5.4 GE Project Manager (G-PM)

5.4.1 Review and approve completed verification package for the design/document or design/document change to assure that verification is sufficient including the independence of the verifier. It is not necessary for the G-PM to approve the detailed elements of the verification as long as the total verification is approved.

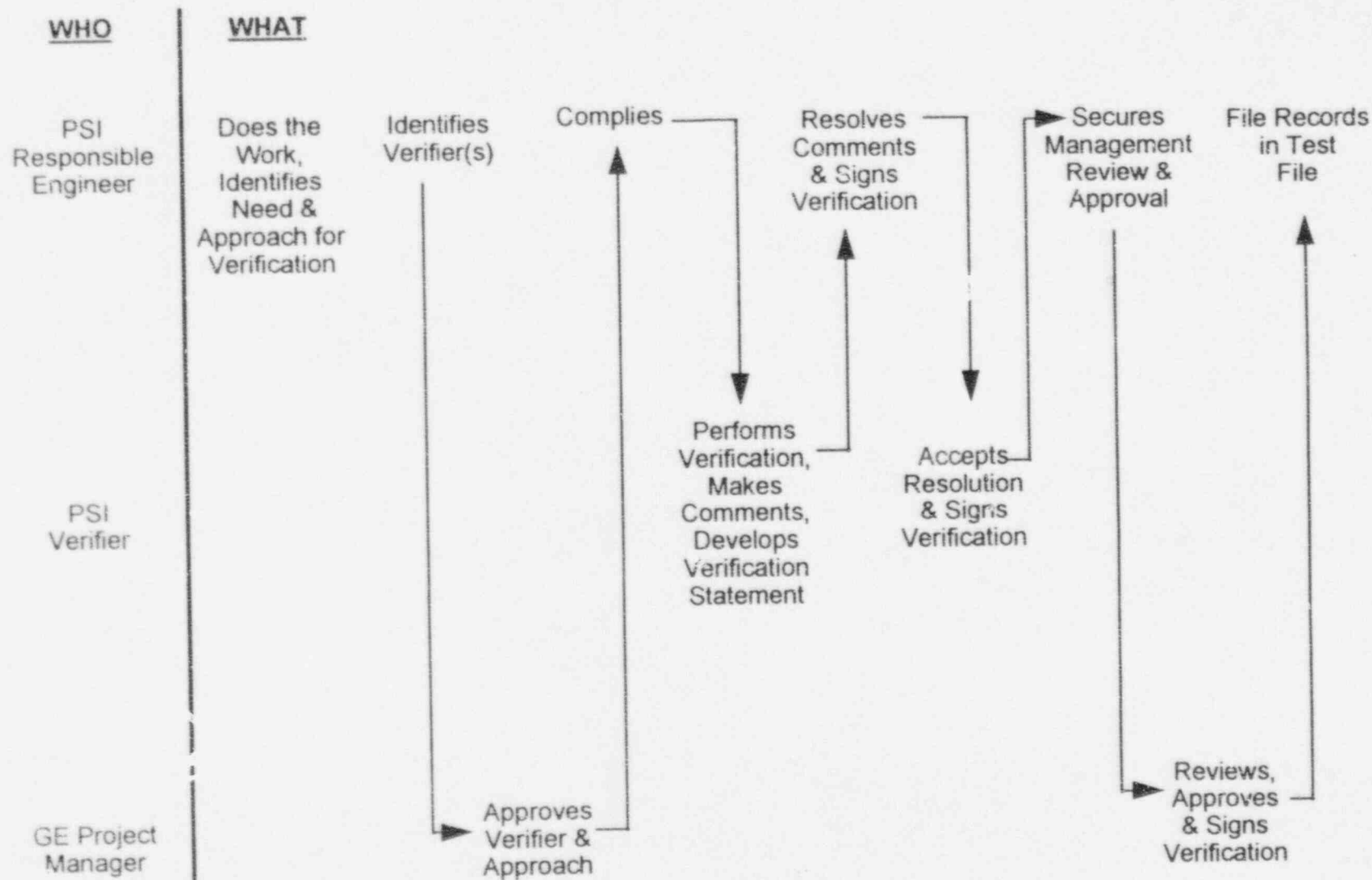
5.4.2 Assure design/document requirements are identified and technical issues that result from the verification are resolved.

5.4.3 Transmit completed verification package to P-RE for inclusion in the Test File.

6.0 ATTACHMENTS

Attachment 1	Verification Process Overview
Attachment 2	Design/Document Verification Guidelines
Attachment 3	Verification Cover Sheet
Attachment 4	Sample of Completed Verification Sheet

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ATTACHMENT 1
Verification Process

ATTACHMENT 2
Design/Document Verification Guidelines

Consider the following questions:

- A1 Were the design/document's inputs correctly selected and incorporated?
- A2 If assumptions had to be made in order to perform the design effort, were the assumptions reasonable?
- A3 Are the appropriate quality assurance requirements specified?
- A4.1 Have technical interfaces been identified and addressed?
- A4.2 Have participating design organizations reviewed and concurred with documents involving technical interfaces?
- A5 Was an appropriate design method used?
- A6 Are the outputs reasonable compared to the inputs? If possible, compare the outputs with outputs from a previous design/document to check if the changed output is consistent with the changed input.

ATTACHMENT 3 - VERIFICATION COVER SHEET

GE PANDA PROJECT <i>Verification Cover Sheet (reference PQAP-V)</i>	
Document/Section:	Subject:
1. VERIFICATION REQUIREMENT	
1A. APPLICATION:	
1B. METHOD OF VERIFICATION: <i>Checking, Alternate Calc., Indiv. Design Review, Team Design Review, Test (circle as needed) Other (describe)</i>	
1C. SCOPE: <i>(identify what is to be verified, e.g. level of detail)</i>	
1D. INPUTS:	
1E. OUTPUTS:	
1F. _____	
Responsible Engineer <i>(print name and sign)</i> _____ Date _____	
2. INDEPENDENT VERIFICATION	
Comments: No <input type="checkbox"/> Yes <input type="checkbox"/>	
2A. VERIFICATION STATEMENT: <i>(The method and scope of verification)</i>	
2B. _____	
Independent Verifier <i>(print name and sign)</i> _____ Date _____	
3. APPROVAL OF VERIFICATION	
3A. GE PROJECT MANAGER'S APPROVAL:	
3B. _____	
Proj. Manager or Delegate <i>(print name and sign)</i> _____ Date _____	
4A. Are there attached sheets for 1A, 1B, 1C, 1D, 1E, 2A, 3A <i>(circle as applicable)</i>	

Quality Assurance Procedure**ATTACHMENT 4- VERIFICATION COVER SHEET EXAMPLE**GE PANDA PROJECT *Verification Cover Sheet (reference PQAP-V)*

Document/Section: TM42-94-11 ALPHA 410 Subject: PANDA TEST PLAN

1. VERIFICATION REQUIREMENT Designated Verifier: G.G. Khan

1A. APPLICATION: PANDA TEST FACILITY

1B. METHOD OF VERIFICATION:

*Checking, Alternate Calc., Indiv. Design Review, Team Design Review, Test (circle as needed) Other (describe)**Other (describe)*

Combination checking and individual design review as described in scope section 1C.

1C. SCOPE: (identify what is to be verified, e.g. level of detail)

Verify test initial condition requirements have been correctly specified in the output document (test procedure) by checking against the input document values (PANDA test spec) and that facility total calculated heat loss estimate is reasonable.

1D. INPUTS: PANDA Test Specification, 25A5587 rev.0 and estimated heat loss calculation.

1E. OUTPUTS: PANDA Test procedure, S1-XX, rev. 1.

1F. J. P. Getty

11/9/94

Responsible Engineer (print name and sign)

Date

2. INDEPENDENT VERIFICATION

Comments: No ☒ Yes ☐

2A. VERIFICATION STATEMENT: (The method and scope of verification)

The method and scope of verification as stated in 1B and 1C are appropriate for the inputs as identified in 1D. All comments and technical issues are resolved. The verification establishes that the output identified in 1E is correct and is adequate for its intended application as identified in 1A.

2B. J.B. Briggs

11/9/94

Independent Verifier (print name and sign)

Date

3. APPROVAL OF VERIFICATION

3A. GE PROJECT MANAGER'S APPROVAL:

The verification is sufficient for the stated application (1A) and the verifier is appropriate.

3B. A.T. Hune

11/9/94

Proj. Manager or Delegate (print name and sign)

Date

4A. Are there attached sheets for 1A, 1B, 1C, 1D, 1E, 2A, 3A (circle as applicable)

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