

Quality Assurance Procedure

TEST CONTROL

PQAP-TC

Prepared for

PANDA PROJECT AT PSI

Revision Status						
Rev.	Prepared/ Revised by	Reviewed and Approved by			Issue Date	Remarks
		G-ISQM	G-PM	P-APM		
0	T. Singh/ P. Billig	T. Singh 27 Jan, 1995	P. Billig 30 Jan 95	G. Boradi 20.1.95	31.1.95	
1	T. Singh/ J. Torbeck	T. Singh 27 Apr, 1995	J. Torbeck 27 APR 95	G. Boradi 1.5.95	5/1/95	Inputs from PSI
2	T. Singh/ J. Torbeck	T. Singh 27 June, 1995	J. Torbeck 27 June 95	G. Boradi 28.6.95	28/6/95	2.1 Revised 2.2 Added
3	G. Wingate/ A. Arretz	T. Singh 11 Sep. 1995	G. Wingate 12 SEPT 95	G. Boradi 14.9.95	9/18/95	General Revision

Ref.: PANDA DRF No. T10-00005

TEST CONTROL**1.0 PURPOSE**

- 1.1 The purpose of this procedure is to define the process for specifying, performing, evaluating, and documenting the PANDA test.
- 1.2 This procedure implements the applicable requirements of GE Engineering Operating Procedure EOP 35-3.00, "Engineering Tests".

2.0 SCOPE

- 2.1 This procedure is applicable to PANDA matrix tests (tests run in accordance with test matrices delineated in the Test Specification) conducted at PSI.
- 2.2 Other tests like facility characterization tests (pressure and leak tightness tests, leak loss tests, and line pressure loss tests) will be performed by qualified PSI personnel in accordance with procedures or instructions approved by the P-PM and G-SQR.

3.0 DEFINITIONS

- 3.1 *PSI ALPHA PROJECT MANAGER (P-APM)* - the PSI individual identified as the PSI ALPHA Project Manager.
- 3.2 *PSI PANDA Project Manager (P-PM)* - the PSI individual identified as the PSI Subproject leader for the PANDA Project.
- 3.3 *GE Project Manager (G-PM)* - the GE individual identified as the Project Manager who is responsible for GE SBWR Test Operations and Analysis.
- 3.4 *GE Site QA Representative (G-SQR)* - the GE Quality Assurance individual assigned to the PANDA test site.
- 3.5 *PSI Test Shift Leader (P-SL)* - the PSI individual with the responsibility for the tests carried out in the PANDA facility.

4.0 REQUIREMENTS

- 4.1 A Test Specification for the PANDA test will be prepared and issued by GE per the requirements and guidelines defined in EOP 35-3.00.
- 4.2 All Panda tests shall be performed by qualified PSI personnel and in accordance with documented procedures approved by P-PM, G-SQR and G-PM.
- 4.3 A Test Plan will be prepared and issued by GE. (see Attachment 1)
- 4.4 A Test Procedure will be prepared and issued by PSI. (see Attachment 1)

5.0 PROCEDURE AND RESPONSIBILITIES

- 5.1 The test control process overview is shown in Attachment 2.

5.2 PSI ALPHA Project Manager (P-APM)

- 5.2.1 Review the Test Specification (TS) and identify any issues to be resolved with the G-PM.
- 5.2.2 Review the Test Plan.
- 5.2.3 Review the test reports to confirm that the test satisfied the requirements in the TS and Test Plan. Advise the P-PM if the test did not meet these requirements.

5.3 PSI PANDA Project Manager (P-PM)

- 5.3.1 Review the Test Specification and identify any issues to be resolved with the P-APM.
- 5.3.2 Prepare Test Procedure per the Test Specification and Test Plan.
- 5.3.3 Issue the Test Procedure in accordance with PQAP-DC, Document Control.
- 5.3.4 Initiate Test File as specified in the Test Specification and PQAP-R, QA Records.
- 5.3.5 Assure that personnel who are assigned to perform or evaluate tests are qualified and trained per PQAP-PT, Personnel Training and Qualification.
- 5.3.6 Assure purchased hardware and software comply with PQAP-P, Procurement Control, as required.

- 5.3.7 Approve all Test Procedure changes.
- 5.3.8 Review revisions to TS and Test Plan.
- 5.3.9 Maintain Test File as specified in the Test Specification and PQAP-R , QA Records.
- 5.3.10 Document the as-built configuration status of the test facility (as-built drawings) per PQAP-DC, Document Control, and calibration status per PQAP-CC, Control of Measuring and Test Equipment, in the project Test File.
- 5.3.11 Review and resolve all test anomalies identified during the test. Document resolutions, conditions requiring correction and corrective actions per PQAP-NC.
- 5.3.12 File the review and approval of resolutions and corrective actions in the project Test File.
- 5.3.13 Evaluate data obtained from the use of gages and instruments that are out of calibration, damaged, or exceed their calibration date during the test. Document evidence of evaluations in the Test File per PQAP-R.
- 5.3.14 Prepare test reports per TS and Test Plan requirements. (may be delegated)
- 5.3.15 Close the Test File and transfer to GE.
- 5.4 **PSI Test Shift Leader (P-SL)**
 - 5.4.1 Perform tests in accordance with Test Plan and Test Procedure.
 - 5.4.2 Assure that test logs are established and maintained.
 - 5.4.3 Markup Test Procedure during testing, as necessary, to reflect changes in how the test data is obtained. Obtain review and approvals as soon as feasible, but before issuance of Apparent Test Report (ATR).
 - 5.4.4 Report anomalies from the Test Plan and Test Procedure to the G-PM and G-SQR per PQAP-NC, Nonconformance Control and Corrective Action. Test anomalies are defined as conditions outside of the acceptance criteria.
 - 5.4.5 Provide test data to P-PM.

5.5 GE Project Manager (G-PM)

- 5.5.1 Establish Design Record File (DRF) to be used to file and maintain technical, quality and project documentation at GE offices in accordance with EOP 42-10.00, Design Record File. Include any special requirements regarding filing unique technical information in the DRF.
- 5.5.2 Define requirements for Test File in the procedure PQAP-R to be used by PSI to file documentation at the PANDA test site during the facility construction and performance of the tests.
- 5.5.3 Prepare and issue a Test Specification and Test Plan.
- 5.5.4 Plan and implement design reviews per EOP 40-7.00, Design Reviews, as required.
- 5.5.5 File the Test Specification and Test Plan, and any revisions, in the project DRF.
- 5.5.6 Approve the Test Procedure.
- 5.5.7 Confirm the readiness of the test facility and/or personnel to perform the tests.
- 5.5.8 Approve all Test Procedure changes. This approval should be made as soon as feasible, but before issuance of ATR.
- 5.5.9 Revise the Test Specification and Test Plan to reflect changes as required.
- 5.5.10 Review and approve resolutions and corrective actions per PQAP-NC taken during the test where test anomalies from the Test Plan and/or Test Procedure have resulted.
- 5.5.11 Evaluate the test reports in order to confirm that the test satisfied the requirements addressed in the TS, Test Plan and Test Procedure. Advise the P-PM, if the test did not meet these requirements. Approve the reports upon completion of any required changes.
- 5.5.12 Close the DRF.
- 5.5.13 Responsibilities as noted above may be delegated to GE Responsible Engineers assigned to PANDA project

5.6 GE Site QA Representative (G-SQR)

- 5.6.1 Review and approve Test Procedure and establish inspection, witness and hold points to verify completion and acceptance of the test activities.
- 5.6.2 Prepare supporting work control plans, checklists, data sheets, etc., as required to monitor the PANDA test activities and document objective evidence of verifications, test results and status.
- 5.6.3 Witness the test preparation and performance as planned.
- 5.6.4 Assure that the configuration and test equipment status are documented adequately.
- 5.6.5 Approve all Test Procedure changes. This approval may be made as required during the actual performance of the test.
- 5.6.6 Assure that the test anomalies determined as nonconformances are documented, resolved and corrective actions taken as required in accordance with PQAP-NC.
- 5.6.7 Monitor test activities and perform site surveillances at periodic intervals to assure that requirements of PPCP, PQAPs and test procedures are implemented. Obtain resolutions and corrective actions to any procedural deviations. See PPCP-QA-01 for the Surveillance Inspection Report Form.

6.0 ATTACHMENTS

- Attachment 1 Test Plan and Test Procedure Requirements
- Attachment 2 Test Control Process

ATTACHMENT 1**Test Plan and Test Procedure Requirements****1.0 TEST PLAN**

Describe how the test is to be set up and performed to meet the Test Specification and any special safety conditions associated with the test. Include requirements for test records, instrumentation, data acquisition system, data reduction and reporting.

- 1.1 Give each test a unique test number.
- 1.2 State the purpose for each test.
- 1.3 Define the initial conditions for each test.
- 1.4 Specify end-of-test conditions.

2.0 TEST PROCEDURES

Describe the specific procedures required to perform the test. Address the following in the procedures.

- 2.1 Specify in sufficient detail the sequence of actions to be performed by the test facility operators.
- 2.2 Define the checks necessary to assure proper data acquisition and recording during a test.
- 2.3 Define inspection, witness and hold points to verify completion of test activities.
- 2.4 Identify dangerous aspects of the tests with precautions and limiting conditions at which a test has to be interrupted.
- 2.5 Define post-test status of the facility which will allow it to be left unattended.

**ATTACHMENT 2
Test Control Process**