QUALITY ASSURANCE PROCEDURE

Franklin Research Center A Division of The Franklin Institute 20th and Race Streets. Phila., Pa. 19103 (215) 448-1000 **QUALITY ASSURANCE PROCEDURE**	QAP No. 9-1	Page 1 of 4
	Date Issued 9/1/83	Effective Date
	Revision Number 0	Review Date
	☒ Prepared D.L. Paulson ☒ Approved A. J. Saggiomo	
TITLE REVIEW OF CONTRACT DELIVERABLE DOCUMENTS	Concurred By	

1.0 PURPOSE

1.1 The purpose of this document is to establish procedures for verifying the completeness and correctness of contract deliverable documents prepared by the Nuclear Engineering Department (NED).

2.0 RESPONSIBILITIES

2.1 The Program Manager, the Project Engineer, or their delegate is responsible for assuring that these procedures are carried out.

2.2 An engineer or qualified assistant generally knowledgeable in the subject matter of a document, and who is not the author of the document, shall review the document for technical and editorial content.

2.3 The Quality Assurance Manager or his designated alternate shall review the appropriate documents to ensure inclusion of contractual quality requirements and to ensure compliance with QAAI No. 1-1, this QAP, QASD Nos. 6-1 and 9-1, and Section 14 of the Franklin Quality Assurance Manual.

3.0 DEFINITIONS

3.1 Contract Deliverable Documents. In-house written plans, procedures, commentaries, and reports identified as documents to be delivered or made available to the client under the contracted scope of work.

3.2 Program Manager. The senior person held responsible for the management of the client's program, which may include more than one project or task.

3.3 Project Manager/Engineer. An assigned engineer held responsible for the performance of a designated project or task within the program. He may also be called a Task Leader. The Project Engineer/Task

Leader reports to the Program Manager on project/program matters. The Program Manager, Project Engineer, and Task Leader may be the same person.

4.0 INSTRUCTIONS

4.1 The author of a document shall prepare the document in a form suitable for in-house review.

4.2 The author shall select and provide the appropriate review forms from among the types included herein as Exhibits I through V. The selected forms shall include Exhibit II (NED Report Review Control) as a covering document plus one of the checklists (Exhibits III, IV, or V) which have self-explanatory titles and purposes. The NED Report Review form (Exhibit I) may be used to document review comments.

Exhibit I. NED Report Review
Exhibit II. NED Report Review Control
Exhibit III. Checklist for Review of Test Plan
Exhibit IV. Checklist for Review of Test Procedures
Exhibit V. Checklist for Review of Test Report

4.3 The author shall complete information on the document review forms which identify the document and the status of the document.

4.4 Before or immediately after the review process, the author shall attach the completed review forms to the document in a manner to prevent inadvertent separation of the form from the reviewed document.

4.5 After consideration and implementation of review comments, the author, or designated alternate, shall file the reviewed copy of the document (with review form attached) in the QA-approved file.

4.6 The Program/Project Manager shall designate an engineer qualified to perform the document review.

4.7 The engineer designated to conduct the review shall perform his task thoroughly and document his review comments as instructed on the forms provided. See Instruction 4.2 above. The reviewing engineer shall sign and date the forms provided.

4.8 The final version of the document shall contain provisions for signatures (and dates) of the principal author(s), the reviewer, the Project Engineer/Task Leader (if appropriate), and as a minimum, a senior supervisory engineer who will approve the document for the

Nuclear Engineering Department. The latter senior engineer may be the Program Manager or the Department Director. Signatures appearing on QAPs and Test Procedures (TPs) shall include those of the author, an independent reviewer, and the Manager of Quality Assurance or his delegate.

4.9 Before signing the final document, the author shall assure that all review comments were considered. Any technical review comment which is not included or addressed in the final version shall be explained to the satisfaction of the reviewer. The review form or the reviewed copy of the document shall be accordingly annotated and initialed by the author or reviewer; the author is responsible to assure completeness of the task.

4.10 Before signing the final document, the reviewer shall assure that all previous review comments were adequately considered and implemented to his satisfaction, and that the document in its present form is suitable for printing and delivery to the client.

4.11 Before signing the final document, the Program Manager and Department Director (when appropriate) shall assure that the document has been previously reviewed and signed by the author and independent reviewer.

5.0 CROSS REFERENCES

5.1 Quality Assurance Manual, Section 6, Design Control; Section 9, Document Control; Section 14, Test Control

5.2 QASD 6-1, Technical Verification and Control of Test/Lab Engineering Evaluation Service Activities

5.3 QASD 9-1, Document Control System for Design Documents

6.0 COUNSEL AND REVIEW CONTACT

6.1 Manager - Quality Assurance

6.2 Program Manager

6.3 Department Director

7.0 DISTRIBUTION

7.1 Manager - Quality Assurance

7.2 Manager(s) - Affected Organizational Units

7.3 Program Manager

8.0 ATTACHMENTS AND EXHIBITS

8.1 Exhibit I - NED Report Review

8.2 Exhibit II - NED Report Review Control

8.3 Exhibit III - Checklist for Review of Test Plan

8.4 Exhibit IV - Checklist for Review of Test Procedures

8.5 Exhibit V - Checklist for Review of Test Report

NED REPORT REVIEW

Page No. _____

This form is to be used for all technical comments. (Editorial comments may be marked on a copy of the report.)

Project No. _____ Task No. _____ Project Manager _____ Author _____

Report No. _____ Draft _____ Final _____ Reviewer _____

Report Page No.	REVIEWER'S COMMENTS Signed _____ Date _____	RESOLUTION BY AUTHOR Signed _____ Date _____

EXHIBIT I

QAP NO. 9-1
REV. 0
PAGE 1 of 1

EXHIBIT II

NED REPORT REVIEW CONTROL

This document must accompany all draft and final documents submitted to the Project Manager for transmittal to the client. The top section is to be completed for all documents.

Project No. _____ Task No. _____

Project Manager _____ Author _____

Report No. _____ Draft _____ Final _____

STATEMENT BY REPORT AUTHOR ON TECHNICAL REVIEW (to provide basis for considering report technically adequate):

Signed _____ Date _____

STATEMENT BY PRODUCTION COORDINATOR ON EDITORIAL REVIEW (to provide basis for considering report editorially adequate):

Signed _____ Date _____

Approved _____ Date _____
Project Manager

Approved _____ Date _____
TBU Manager/Leader

Approved _____ Date _____
Department Director

Distribution: Original: Production Coordinator (MM)
Copies: Project Manager/to Dept. File, TBU Manager or Leader, Report Author, Department Director/to Central File

Revised 06/18/82

Doc. 2034E
Disk 0044E

CHECKLIST FOR REVIEW OF TEST PLAN

Report No.: _____ Draft or Final? _____

Latest date appearing on copy being reviewed: _____

Author's Name: _____ Wang Doc. No.: _____

Signature of Reviewer: _____ Date: _____

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1. This checklist is to be used as an aid for the review of the Test Plan. Key words and phrases are used to stimulate the review process.

2. The reviewer has the responsibility for understanding the purpose and scope of the document and to review it accordingly. The review covers completeness and technical adequacy of the plan.

3. Review comments are to be documented in one or both of the following methods:

   a. Marginal comments in the copy presented for review. The reviewed copy and this checklist is to be signed and dated by the reviewer and made a part of project QA records.

   b. Write comments on the NED REPORT REVIEW form(s). Reference the particular page(s) or section number(s) of the plan.

	Check or Initial
1. OVERALL CONSIDERATIONS	
o Technically coherent	_____
o Accurate and complete	_____
o Style and format	_____
o General appearance	_____
o Compliance with formal QA	_____
2. COVER & TITLE PAGES	
o Descriptive title	_____
o Document No.	_____
o Contract No.	_____
o Client	_____

- o FRC or FIRL? _____
- o Proprietary? _____
- o Disclaimers _____
- o Author/review/approval signatures _____

3. TABLE OF CONTENTS

- o Appropriate topics and titles _____
- o Figures, tables and appendices _____
- o Pages listed properly _____

4. INTRODUCTION

- o Background _____
- o Purposes and objectives _____
- o Requirements and guidance _____
- o Rationale _____

5. DESCRIPTION OF TEST SPECIMENS

- o Word description _____
- o Catalog/Part numbers _____
- o Size, rating, interfaces _____
- o Supplier and address _____
- o Drawing/photographs _____
- o Rationale for specimen selection _____

6. MOUNTING, CONNECTION AND INTERFACE REQUIREMENTS

- o Pipeline, cabinet or floor mounting _____
- o Pneumatic, hydraulic, electric connection _____
- o Pressure/environmental seals _____
- o Input/output signals and power _____
- o Test configuration(s) _____
- o Rationale _____

7. SAFETY-RELATED FUNCTIONS

- o Nominal or DBE conditions _____
- o Primary functions _____
- o Secondary functions _____

8. SERVICE CONDITIONS

- o Normal Service _____
- o Abnormal service _____
- o DBA conditions _____

9. ACCEPTANCE CRITERIA

- o Adequately defined _____
- o Practical under test conditions _____
- o Qualified life addressed _____
- o Contingencies considered _____
- o Rationale

10. TEST SEQUENCE

- o Proper sequence _____
- o Abbreviated test levels and durations _____
- o Reference to detailed sections _____
- o Rationale _____

11. FUNCTIONAL/DIAGNOSTIC TESTING

- o Test arrangements _____
- o Test levels and accuracy _____
- o Baseline tests _____
- o Diagnostic testing _____
- o Test intervals _____
- o Rationale _____

12. THERMAL AGING

- o Oven temperature and duration _____
- o Specimens active or passive _____
- o Performance monitoring _____
- o Rationale _____

13. NUCLEAR RADIATION AGING

- o Dose and rate _____
- o Specimens active or passive _____
- o Performance monitoring _____
- o Rationale _____

14. OPERATIONAL AGING

- o Quantity of operations _____
- o Stress load _____
- o Performance monitoring _____
- o Rationale _____

15. VIBRATION AGING

- o Specimen mounting and orientation _____
- o Vibration levels _____
- o Specimens active or passive _____
- o Performance monitoring _____
- o Rationale _____

16. RESONANCE SEARCH

- o Test levels _____
- o Accelerometer locations _____
- o Resonance defined _____
- o Rationale _____

17. SEISMIC TESTING

- o Specimen mounting and orientation _____
- o Single or dual actuator testing _____
- o Test levels _____
- o Specimens active or passive _____
- o Performance monitoring _____
- o Rationale _____

18. ACCIDENT NUCLEAR RADIATION

- o Dose and rate _____
- o Specimens active or passive _____
- o Performance monitoring _____
- o Rationale _____

19. SIMULATED LOCA/MSLB EXPOSURE

- o Specimen configuration _____
- o Stress load on specimen _____
- o Pressure/environmental seals _____

- o Thermocouple quantity and locations _____
- o Chemical spray-rate density _____
- o Spray solution chemistry _____
- o Temperature/pressure profile _____
- o Performance monitoring _____
- o Functional/diagnotistic test schedule _____
- o Rationale _____

20. FINAL TESTS AND INSPECTIONS _____

21. DESCRIPTION OF TEST FACILITIES _____

22. DISCUSSION OF TEST MARGINS

- o Temperatures, pressures, voltages, current, forces, etc. _____
- o Rationale _____

23. DATA ACQUISITION REQUIREMENTS

- o Practical accuracies of measurements _____
- o Instrument types, if special _____
- o Rationale _____

24. DOCUMENTATION _____

25. REFERENCES

- o Complete citations _____
- o Correlation to text references _____

26. QUALITY ASSURANCE PROVISIONS

- o QA/client witnessing of tests _____
- o Hold points before proceding with tests _____
- o Other formalities

27. COMMENTS OF GENERAL OR OTHER NATURE:

CHECKLIST FOR REVIEW OF TEST PROCEDURES

Document No.: _____ Draft or Final? _____

Latest date appearing on copy being reviewed: _____

Author's Name: _____ Wang Doc. No.: _____

Signature of Reviewer: _____ Date: _____

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1. This checklist is to be used as an aid for the review of a test procedure. The procedure may be in the form of a Quality Assurance Procedure (QAP) or a Test Procedure (TP). Key words and phrases are used to stimulate the review process.

2. The reviewer has the responsibility to understand the purpose and scope of the document and to review it accordingly. The review covers completeness and technical adequacy of the document.

3. Review comments are to be documented by one or both of the following methods:

   a. Marginal comments in the copy presented for review. The reviewed copy and this checklist are to be signed and dated by the reviewer and made a part of project QA records.

   b. Written comments on the NED REPORT REVIEW form(s). Reference should be made to the particular page(s) or section number(s) of the document.

	Check or Initial
1. OVERALL CONSIDERATIONS	
o Technical coherence	_____
o Accuracy and completeness	_____
o Style and format	_____
o General appearance	_____
o Compliance with formal QA	_____
2. COVER AND TITLE PAGES	
o Descriptive title	_____
o Document No.	_____
o Revision No.	_____

Wang Doc. 7015E, Disk 0283E

- o FRC or FIRL? _____
- o Proprietary? _____
- o Author/review/approval signatures _____

3. INTRODUCTION

- o Background _____
- o Purposes and objectives _____

4. SAFETY AND SECURITY CAUTIONS (if appropriate)

5. REFERENCE DOCUMENTS

6. ACCEPTANCE CRITERIA

7. DESCRIPTION OF TEST SPECIMENS

- o Word description _____
- o Catalog/part numbers _____
- o FRC/FIRL identification numbers _____
- o Size or rating information _____

8. PREPARATIONS FOR TESTING

- o Test facility(s) _____
- o Test arrangements and fixtures _____
- o Accuracy of measurements _____
- o Instrument calibrations _____
- o Data acquisition _____
- o Data recording _____

9. PRELIMINARY TESTS AND INSPECTIONS

- o Visual inspection _____
- o Identification of specimens _____
- o Photography of specimens _____
- o Assembly for testing _____
- o Checkout of arrangements _____

10. FUNCTIONAL TESTS

- o QA requirements _____
- o Power and pressure supplies _____
- o Signal and control inputs _____

- o Limits of acceptable results _____
- o Clarity of procedures _____

11. ENVIRONMENTAL EXPOSURES

- o Test sequence _____
- o Test method(s) _____
- o Test levels _____
- o QA requirements _____
- o Monitoring provisions _____
- o Contigency plans _____
- o List of instruments _____
- o Photography _____
- o Reviews by Project Engineer _____

12. FINAL TESTS AND INSPECTIONS

- o Functional tests _____
- o Electrical measurements _____
- o Visual inspections _____
- o Photography _____

13. PROJECT SETDOWN

- o Review of list of instruments _____
- o Final calibrations _____
- o Collection and disposition of data _____
- o Disposition of specimens _____
- o Cleanup of the facility _____
- o Project summary card _____
- o Termination of project _____

14. ATTACHMENTS AND ILLUSTRATIONS

- o Proper identification _____
- o Labeling of parameters _____

15. QUALITY ASSURANCE PROVISIONS

- o QA/client witnessing of tests _____
- o Mandatory hold points before proceeding _____
- o Other formalities _____

16. COMMENTS OF GENERAL OR OTHER NATURE

CHECKLIST FOR REVIEW OF TEST REPORT

Report No.: _____ Draft or Final? _____

Latest date appearing on copy being reviewed: _____

Author's Name: _____ Wang Doc. No.: _____

Signature of Reviewer: _____ Date: _____

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1. This checklist is to be used as an aid for the review of the Test Report. Key words and phrases are used to stimulate the review process.

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   b. Write comments on the NED REPORT REVIEW form(s). Reference the particular page(s) or section number(s) of the plan.

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1. OVERALL CONSIDERATIONS	
o Technically coherent	_____
o Accurate and complete	_____
o Style and format	_____
o General appearance	_____
o Compliance with formal QA	_____
2. COVER & TITLE PAGES	
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o Contract No. (if appropriate)	_____
o Client	_____

- o FRC or FIRL? _____
- o Proprietary? _____
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3. TABLE OF CONTENTS

- o Appropriate topics and titles _____
- o Figures, tables and appendices _____
- o Pages listed properly _____

4. SUMMARY OF SALIENT FACTS

- o Title agrees with cover _____
- o Report No. _____
- o Client Address _____
- o Objective _____
- o Description of equipment tested _____
- o Elements of program _____
- o Results or conclusions _____
- o Footnotes _____

5. OBJECTIVES

- o Definitive purpose(s) _____
- o References for objectives _____

6. ACCEPTANCE CRITERIA

- o Clarity of statements _____
- o Practicality of criteria _____
- o References for criteria _____

7. DESCRIPTION OF TEST SPECIMENS

- o Word description _____
- o Catalog/Part numbers _____
- o Client-provided description? _____
- o Size, rating, interfaces _____
- o Drawing/photographs (if appropriate) _____

8. DESCRIPTION OF TEST FACILITIES (OR ARRANGEMENTS)

- o Word description _____
- o Illustrations (if appropriate) _____
- o SI units (throughout document) _____
- o List of data acquisition instruments _____
- o Thermocouples locations _____
- o Other key sensor locations _____

9. TEST PROCEDURES

- o Sequence of tests _____
- o References (e.g., Test Plan) _____
- o Pretest inspection, etc. _____
- o Preparations _____
- o Functional performance test(s) _____
- o Adequate written descriptions supplemented, as necessary, with illustrations _____
- o SI units _____
- o Final tests _____

10. TEST RESULTS

- o Orderly presentation _____
- o Summarized adequately _____
- o Understandable tables and footnotes _____
- o Legible graphs and charts _____
- o Appropriate illustrations _____
- o SI units _____
- o Deviations and nonconformances reported _____

11. DISCUSSION OF TEST RESULTS

- o Salient points discussed as they may affect program purposes and conclusions _____
- o Statement that test data accuracies were adequate to purposes of program _____
- o Recommendations (if appropriate) _____

12. CONCLUSION(S)

- o Concise concluding statement(s) describing test specimens and test program, and whether specimens passed/failed acceptance criteria _____
- o Criteria referenced _____
- o Agreement with Summary of Salient Facts _____

13. CERTIFICATION

- o Proper individuals identified _____

14. REFERENCES (OPTIONAL)

- o Complete citations _____
- o Correlation to text references _____

15. APPENDICES

- o Descriptive cover pages _____
- o Contents self-explanatory _____
- o Contents legible and reproducible _____

16. INSIDE BACK COVER BLURB

- o Current description _____
- o FRC and FIRL described? _____

18. COMMENTS OF A GENERAL QUALITY ASSURANCE OR ADMINISTRATIVE NATURE: