

RELEASE AUTHORIZATION

Document Number: WHC-SD-W236A-PLN-002, Rev. 0

Document Title: Design Review Plan ~~Project W-236A~~ ^{FOR} Multi-Function Waste Tank Facility ~~(Project W-236A)~~

Release Date: 12/19/94

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Chris Willingham

C. Willingham

12/19/94

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

This report has been reproduced from the best available copy. Available in paper copy and microfiche. Printed in the United States of America. Available to the U.S. Department of Energy and its contractors from:

U.S. Department of Energy
Office of Scientific and Technical Information (OSTI)
P.O. Box 62
Oak Ridge, TN 37831
Telephone: (615) 576-8401

Available to the public from:

U.S. Department of Commerce
National Technical Information Service (NTIS)
5285 Port Royal Road
Springfield, VA 22161
Telephone: (703) 487-4650

MASTER

SUPPORTING DOCUMENT1. Total Pages **H** 12

2. Title

Design Review Plan for Multi-Function Waste Tank Facility (Project W-236A)

3. Number

WHC-SD-W236A-PLN-002

4. Rev No.

0

5. Key Words

MWF, TANKS, DESIGN, PROJECT W236A

6. Author

Name: GG Renfro


Signature

Organization/Charge Code 7F230/DTFD2

7. Abstract

A plan to describe the strategy for the review of design media. Description of actions required, and provides methodology to ensure design accuracy and completeness.

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

8. RELEASE STAMP

OFFICIAL RELEASE
BY WHC
DATE DEC 20 1994

35 Station 21

DISCLAIMER


Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

**MULTI-FUNCTION WASTE TANK FACILITY
PROJECT W-236A
DESIGN REVIEW PLAN**


**WHC-SD-W236A-PLN-002
November 1994
Revision 0**

MULTI-FUNCTION WASTE TANK FACILITY
PROJECT W-236A
DESIGN REVIEW PLAN

Westinghouse Hanford Company Approvals:


Prepared by G. G. Renfyo
MUTF, Project Engineering Manager

11/8/94
Date


Approved by T. Z. Anderson
MUTF, QA Engineer

11/17/94
Date

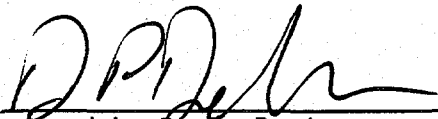

Approved by R. D. Fritz
MUTF, Project Manager

11-17/94
Date

ICF Kaiser Hanford Approvals:


Approved by T. C. Oten
MUTF, Engineering Manager

11/14/94
Date


Approved by B. P. Devine
MUTF, Deputy Project Manager

11/11/94
Date

TABLE OF CONTENTS

1.0	PURPOSE	1-1
2.0	SCOPE	2-1
3.0	DEFINITIONS	3-1
	3.1 Design Organization	3-1
	3.2 Integrating Contractor	3-1
	3.3 Over-the-Shoulder Reviews	3-1
	3.4 Design Reviews	3-1
	3.5 Design Checking and Verification	3-1
	3.6 Peer Review	3-1
4.0	REQUIREMENTS	4-1
5.0	RESPONSIBILITIES	5-1
	5.1 Design Organization (ICF KH)	5-1
	5.2 Integrating Contractor (WHC)	5-2
6.0	DOCUMENTATION	6-1
7.0	REFERENCES	7-1

1.0 PURPOSE

This plan describes how the Multi-Function Waste Tank Facility (MWTF) Project conducts reviews of design media; describes actions required by Project participants; and provides the methodology to ensure that the design is complete, meets the technical baseline of the Project, is operable and maintainable, and is constructable.

2.0 SCOPE

This plan applies to the review of engineering documents for the MWTF Project prepared by ICF Kaiser Hanford (ICF KH) for procurement and construction. This plan describes the review process conducted by ICF KH and Westinghouse Hanford Company (WHC).

3.0 DEFINITIONS

- 3.1 **Design Organization.** The contractor that is formally assigned responsibility for the design scope of work. For the MWTF Project that contractor is ICF KH.
- 3.2 **Integrating Contractor.** The contractor assigned the responsibility of bringing together all aspects of the Project and bringing the Project to a successful conclusion. For the MWTF Project that contractor is WHC.
- 3.3 **Over-the-Shoulder Reviews.** Reviews by WHC of ICF KH design activity during the course of design development.
- 3.4 **Design Reviews.** Documented, independent reviews by WHC of completed ICF KH designs.
- 3.5 **Design Checking and Verification.** Efforts by ICF KH to independently ensure that design performed by their various disciplines is complete, accurate, and suitable for the intended use.
- 3.6 **Peer Review.** Independent review and design verification directed by ICF KH involving the use of persons who are capable and qualified to develop the documents being reviewed, but are independent from their development.

4.0 REQUIREMENTS

Periodic and final design checking, verification, and reviews are conducted as a matter of good engineering practice and to satisfy the requirements of:

- 1) DOE Order 4700.1, Chapter V, Part C
- 2) DOE Order 6430.1A, Section 0111-2.7
- 3) DOE Order 5700.6C, NQA-1 Supplement 3S-1
- 4) MWTF Quality Assurance Program Plan

5.0 RESPONSIBILITIES

Project W-236A is an integrated project wherein the relationship between the operating contractor and architect-engineer is somewhat different than that of a conventional project. Working together, WHC and ICF KH have developed a relationship whereby ICF KH performs extensive design reviews and design verification. The review and verification process is described in 5.1 below.

WHC actively participates in over-the-shoulder reviews during design development, performs a final review of the completed design, and conducts a formal design review of the Safety Class I, ASME boiler and Pressure Vessel Code items in accordance with WHC-CM-6-1, Standard Engineering Practices.

5.1 Design Organization (ICF KH)

The design organization is responsible for checking all work which they produce and performing design verification, where required, through the normal procedure or peer review process.

Checking:

Checking is an independent review of an unapproved document or drawing by a qualified individual. Checking of engineering documents is required by DOE Order 5700.6C, NQA-1 Supplement 3S-1, and ICF KH procedure ENG 2.3 (Checking). This activity may be used as design verification for Safety Class 2, 3, and 4 systems, and components.

The checking function includes ensuring that the criteria used, sources, references, correspondence, standards, applicability of calculation methods, and existing conditions are correct. The experience and qualifications of a checker may not be at the level of a person performing peer review or formal design verification. Therefore, the checking activity is typically in addition to the independent peer review and/or design verification activities. However, on non-safety class items and design deliverables, checking is considered the only design verification activity required. ICF KH procedure ENG 2.3 thoroughly addresses the checking process and is in accordance with current WHC and ICF KH design process procedures.

Design Verification/Peer Review:

For the MWTF Project, ICF KH has determined that for Safety Class I items and other selected design activities the performance of an independent peer review or ICF KH design verification will satisfy the requirements for independent design verification (ICF KH Position Paper W-236A-T1-PP-2). The reviewers must be on the ICF KH Qualifications List maintained by the Chief Design Engineer, and they must have received the required training. The reviewers will use the Design Verification methodology and documentation process contained in ICF KH procedure ES-7 (Design Verification). Peer review is required for the W-236A Project seismic, thermal, and other selected design activities.

Peer review can be conducted at the end of the design activity, at specific stages of the design process, or continuously and concurrently with the design activity. This latter method is often referred to as "Continuous Peer Review". The extent of peer review for the MWTF Project is detailed on the Independent Peer Review Analysis matrix, shown as part of the Design Verification Plan W-236A-T2-AP12.

5.2 Integrating Contractor (WHC)

WHC will perform over-the-shoulder review of all design as it is being developed. Included in this activity will be operational input as required, review of overall layouts, architectural arrangements, material handling considerations, mechanical, electrical, and instrumentation systems, and ALARA considerations. Information provided by WHC to support design development will be documented in the form of meeting minutes or memorandums.

Procurement and construction packages for W-236A are described in the Plant Acquisition Plan (PAP). These packages will be reviewed by WHC in accordance with Engineering Practice Guideline WHC-IP-1026, which is a part of WHC-CM-6-1, Standard Engineering Practices. The objective of this review is to ensure that design inputs have been evaluated and verified for their impact on the design, and that the design meets the applicable requirements for environmental, quality, safety, and performance at a reasonable cost. This review is the final step prior to procurement and construction activity.

6.0 DOCUMENTATION

All checking, verification, and review will be documented. Checking will be documented per ICF KH Engineering Process Manual ENG 2.3, verification will be documented per ICF KH Engineering Services ES-7, and design review will be documented per WHC-CM-6-1, Standard Engineering Practice.

7.0 REFERENCES

- 1) ICF KH Engineering Process Manual ENG 2.3
- 2) ICF KH Engineering Services ES-7 and ES 7-3 M2
- 3) ICF KH Department Process Instruction W-236A-DPI-4
- 4) W-236A-T2-AP12, Design Verification Plan
- 5) Peer Review Position Paper, W-236A-T1-PP-2, Rev. 0, 2/16/94
- 6) WHC-CM-6-1, Standard Engineering Practices, EP-4-1
- 7) WHC Engineering Practice Guidelines EPG-4-1, WHC-IP-1026