

**ASME TDP-1–2013**  
(Revision of ASME TDP-1–2006)

# **Prevention of Water Damage to Steam Turbines Used for Electric Power Generation: Fossil-Fueled Plants**

---

**AN AMERICAN NATIONAL STANDARD**



**The American Society of  
Mechanical Engineers**

**ASME TDP-1–2013**  
(Revision of ASME TDP-1–2006)

# **Prevention of Water Damage to Steam Turbines Used for Electric Power Generation: Fossil-Fueled Plants**

---

**AN AMERICAN NATIONAL STANDARD**



**The American Society of  
Mechanical Engineers**

Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: June 7, 2013

This Standard will be revised when the Society approves the issuance of a new edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this document. Periodically certain actions of the ASME TWDP Committee may be published as Cases. Cases and interpretations are published on the ASME Web site under the Committee Pages at <http://cstools.asme.org/> as they are issued.

Errata to codes and standards may be posted on the ASME Web site under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

The Committee Pages can be found at <http://cstools.asme.org/>. There is an option available to automatically receive an e-mail notification when errata are posted to a particular code or standard. This option can be found on the appropriate Committee Page after selecting “Errata” in the “Publication Information” section.

ASME is the registered trademark of The American Society of Mechanical Engineers.

This code or standard was developed under procedures accredited as meeting the criteria for American National Standards. The Standards Committee that approved the code or standard was balanced to assure that individuals from competent and concerned interests have had an opportunity to participate. The proposed code or standard was made available for public review and comment that provides an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

ASME does not “approve,” “rate,” or “endorse” any item, construction, proprietary device, or activity.

ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor assume any such liability. Users of a code or standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

Participation by federal agency representative(s) or person(s) affiliated with industry is not to be interpreted as government or industry endorsement of this code or standard.

ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.

No part of this document may be reproduced in any form,  
in an electronic retrieval system or otherwise,  
without the prior written permission of the publisher.

The American Society of Mechanical Engineers  
Two Park Avenue, New York, NY 10016-5990

Copyright © 2013 by  
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS  
All rights reserved  
Printed in U.S.A.

# CONTENTS

Foreword .....	iv
Committee Roster .....	v
<b>1 Scope</b> .....	1
<b>2 Criteria</b> .....	1
<b>3 Design</b> .....	4
<b>4 Operation</b> .....	27
<b>5 Testing, Inspection, Maintenance, and Monitoring</b> .....	29
<b>6 Conclusion</b> .....	30
<b>Figures</b>	
1 Typical Flash Tank/Separators Arrangement: Local Control System .....	6
2 Typical Flash Tank/Separators Arrangement: Integrated Control System .....	7
3 Typical Leveling System Arrangement: Integrated Control System .....	8
4 Typical Attenuator System .....	9
5 Typical Drain System With Redundant Level Elements .....	11
6 Typical Heater Steam Side Isolation System: Local Control System .....	14
7 Typical Heater Steam Side Isolation System: Integrated Control System .....	15
8 Typical Heater Tube Side Isolation System: Local Control System .....	16
9 Typical Heater Tube Side Isolation System: Integrated Control System .....	17
10 Typical Deaerator Arrangement With Drain System: Local Control System .....	19
11 Typical Deaerator Arrangement With Drain System: Integrated Control System .....	20
12 Typical Deaerator Arrangement With Inlet Isolation: Local Control System .....	21
13 Typical Deaerator Arrangement With Inlet Isolation: Integrated Control System .....	22
14 Main Turbine: Typical Steam Seal Arrangement .....	26
<b>Tables</b>	
1 Symbol Legend .....	4
2 Device Identification Letters .....	5