Management of Hazards Associated with Location of Process Plant Permanent Buildings

API RECOMMENDED PRACTICE 752
THIRD EDITION, DECEMBER 2009

REAFFIRMED, AUGUST 2020

Management of Hazards Associated with Location of Process Plant Permanent Buildings

Downstream Segment

API RECOMMENDED PRACTICE 752
THIRD EDITION, DECEMBER 2009

REAFFIRMED, AUGUST 2020

American
Petroleum
Institute

Special Notes

API publications necessarily address problems of a general nature. With respect to particular circumstances, local, state, and federal laws and regulations should be reviewed.

Neither API nor any of API's employees, subcontractors, consultants, committees, or other assignees make any warranty or representation, either express or implied, with respect to the accuracy, completeness, or usefulness of the information contained herein, or assume any liability or responsibility for any use, or the results of such use, of any information or process disclosed in this publication. Neither API nor any of API's employees, subcontractors, consultants, or other assignees represent that use of this publication would not infringe upon privately owned rights.

Users of this recommended practice (RP) should not rely exclusively on the information contained in this document. Sound business, scientific, engineering, and safety judgment should be used in employing the information contained herein.

API is not undertaking to meet the duties of employers, manufacturers, or suppliers to warn and properly train and equip their employees, and others exposed, concerning health and safety risks and precautions, nor undertaking their obligations to comply with authorities having jurisdiction.

Information concerning safety and health risks and proper precautions with respect to particular materials and conditions should be obtained from the employer, the manufacturer or supplier of that material, or the material safety datasheet.

Where applicable, authorities having jurisdiction should be consulted.

Work sites and equipment operations may differ. Users are solely responsible for assessing their specific equipment and premises in determining the appropriateness of applying the RP. At all times users should employ sound business, scientific, engineering, and judgment safety when using this RP.

API publications may be used by anyone desiring to do so. Every effort has been made by the Institute to assure the accuracy and reliability of the data contained in them; however, the Institute makes no representation, warranty, or guarantee in connection with this publication and hereby expressly disclaims any liability or responsibility for loss or damage resulting from its use or for the violation of any authorities having jurisdiction with which this publication may conflict.

API publications are published to facilitate the broad availability of proven, sound engineering and operating practices. These publications are not intended to obviate the need for applying sound engineering judgment regarding when and where these publications should be utilized. The formulation and publication of API publications is not intended in any way to inhibit anyone from using any other practices.

Any manufacturer marking equipment or materials in conformance with the marking requirements of an API standard is solely responsible for complying with all the applicable requirements of that standard. API does not represent, warrant, or guarantee that such products do in fact conform to the applicable API standard.

Foreword

This recommended practice (RP) provides guidance for new and existing building siting evaluation and references documents concerning technical aspects of building siting evaluation including hazard identification, consequence modeling, structural analysis, and risk. Among the hazards that potentially could affect building occupants are explosion, fire, and toxic material releases.

This third edition of API RP 752:2009 supersedes all previous editions, including the technical data provided in those documents. Significant research and development of technology pertinent to building siting evaluations has been performed since the publication of the previous editions of API RP 752. Examples of updated technology include prediction of blast damage to buildings, determination of occupant vulnerabilities, and estimates of event frequencies. Prior versions of API RP 752 and the technical data included in them should not be used for building siting evaluations.

The second edition of API RP 752:2003 covered all building types both permanent and portable. This third edition of API RP 752:2009 does not cover portable buildings. Portable buildings are now covered by API RP 753:2007. It is recognized, however, that portable buildings specifically designed for significant blast loads represent a potential area of overlap between API RP 753 and API RP 752. In accordance with 1.3 of this document:

> "Buildings described in API RP 753, *Management of Hazards Associated with Location of Process Plant Portable Buildings*, First Edition, June 2007, as 'portable buildings specifically designed to resist significant blast loads' and intended for permanent use in a fixed location are covered in this document (API RP 752). All other portable buildings are covered by API RP 753."

Nothing contained in any API publication is to be construed as granting any right, by implication or otherwise, for the manufacture, sale, or use of any method, apparatus, or product covered by letters patent. Neither should anything contained in the publication be construed as insuring anyone against liability for infringement of letters patent.

Shall: As used in an RP, "shall" denotes a minimum requirement in order to conform to the RP.

Should: As used in an RP, "should" denotes a recommendation or that which is advised but not required in order to conform to the RP.

This document was produced under API standardization procedures that ensure appropriate notification and participation in the developmental process and is designated as an API standard. Questions concerning the interpretation of the content of this publication or comments and questions concerning the procedures under which this publication was developed should be directed in writing to the Director of Standards, American Petroleum Institute, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001. Requests for permission to reproduce or translate all or any part of the material published herein should also be addressed to the director.

Generally, API RPs are reviewed and revised, reaffirmed, or withdrawn at least every five years. A one-time extension of up to two years may be added to this review cycle. Status of the publication can be ascertained from the API Standards Department, telephone (202) 682-8000. A catalog of API publications and materials is published annually by API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001.

Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, NW, Suite 1100, Washington, DC 20001, standards@api.org.

Contents

Page

Management of Hazards Associated with Location of Process Plant Permanent Buildings

1 Scope

1.1 General

This recommended practice (RP) provides guidance for managing the risk from explosions, fires and toxic material releases to on-site personnel located in new and existing buildings intended for occupancy. This RP was developed for use at refineries, petrochemical and chemical operations, natural gas liquids extraction plants, natural gas liquefaction plants, and other onshore facilities covered by OSHA 29 *CFR* 1910.119 [1].

Buildings covered by this RP are rigid structures intended for permanent use in fixed locations. Tents, fabric enclosures, and other soft-sided structures are outside the scope of this document.

1.2 Guiding Principles

This RP is based on the following guiding principles:

a) locate personnel away from process areas consistent with safe and effective operations;

b) minimize the use of buildings intended for occupancy in close proximity to process areas;

c) manage the occupancy of buildings in close proximity to process areas;

d) design, construct, install, modify, and maintain buildings intended for occupancy to protect occupants against explosion, fire, and toxic material releases;

e) manage the use of buildings intended for occupancy as an integral part of the design, construction, maintenance, and operation of a facility.

1.3 Relationship with API RP 753, First Edition

Buildings described in API RP 753, *Management of Hazards Associated with Location of Process Plant Portable Buildings*, First Edition, June 2007 as "portable buildings specifically designed to resist significant blast loads" and intended for permanent use in a fixed location are covered in this document (API RP 752). All other portable buildings are covered by API RP 753.

2 Normative References

There are no normative references for this document.

References in this document and the bibliography are provided for information only and are not part of this RP.

3 Terms and Definitions

For the purpose of this publication, the following terms and definitions apply.

3.1
blast load
The load applied to a structure or object from a blast wave, which is described by the combination of overpressure and either impulse or duration.