Guidelines for Onshore Hydrocarbon Pipelines Affecting High Consequence Floodplains

API RECOMMENDED PRACTICE 1133
FIRST EDITION, FEBRUARY 2005

REAFFIRMED, OCTOBER 2016

AMERICAN PETROLEUM INSTITUTE

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Downstream Segment

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Guidelines for Onshore Hydrocarbon Pipelines Affecting High Consequence Floodplains

1 Scope

This recommended practice (RP) sets out criteria for the design, construction, operation, maintenance and abandonment of onshore pipelines that could affect high consequence floodplains and associated commercially navigable waterways. This RP applies only to steel pipelines that transport gas, hazardous liquids, alcohols or carbon dioxide.

The design, construction, inspection and testing provisions of this RP should not apply to pipelines that were designed or installed prior to the latest revision of this publication. The operation and maintenance provisions of this RP should apply to existing facilities.

The contents in this RP should not be considered a fixed rule for application without regard to sound engineering judgment.

2 References

The following codes, standards, practices, specifications and publications are incorporated in this RP.

API

Spec 6D — *Pipeline Valves (Gate, Plug, Ball, and Check Valves)*

Std 1104 — *Welding of Pipelines and Related Facilities*

RP 1109 — *Marking Liquid Petroleum Pipeline Facilities*

RP 1110 — *Pressure Testing of Steel Pipelines for the Transportation of Gas, Petroleum Gas, Hazardous Liquids or CO_2*

RP 1117 — *Movement of In-service Pipelines*

AGA[1]

AGA Submarine Pipeline On-bottom Stability Analysis and Design Guidelines

ASCE[2]

89 — *Pipeline Crossings Handbook American Society of Civil Engineers (ASCE)*

Pipeline Rules of Thumb Handbook, published by Gulf Publishing Company, Houston,

ASME[3]

B31.4 — *Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids*

B31.8 — *Gas Transmission and Distribution Piping Systems*

AWS[4]

D1.1 — *Structural Welding Code*

NACE[5]

DOT RSPA—Pipeline Safety Regulations

49 *Code of Federal Regulations* Part 192

49 *Code of Federal Regulations* Part 194

49 *Code of Federal Regulations* Part 195

NASTT[6]

Guidelines for a Successful Directional Crossing Bid Package, 1996

OSHA[7]

29 *Code of Federal Regulations* Part 1926.650 through 1926.652 (Trenching and Shoring Code Only)

PRCI[8]

Installation of Pipelines by Horizontal Directional Drilling (PRCI no. PR-227-9424)

Water-crossing Design and Installation Manual, developed for AGA (PRCI no. PR-237-9428)

Offshore and Onshore Design Application (PRCI no. PR- 170-9522)—*Design Application L51767, Integrity Assessment of Exposed/Unburied Pipe in River*; *Design Application L51768, Pipeline Free Span Design*

3 Definitions

For the purposes of this publication, the following definitions apply:

3.1 abandonment: Permanently removing a pipeline from service.

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[1]American Gas Association, 400 N. Capitol St., NW, Suite 450, Washington, D.C. 20001.www.aga.org

[2]American Society of Civil Engineers, 1801 Alexander Bell Dr., Reston, Virginia 20191. www.asce.org

[3]ASME International, 3 Park Avenue, New York, New York 10016-5990. www.asme.org

[4]American Welding Society, 550 N.W. LeJeune Road, Miami, Florida 33126. www.aws.org

[5]NACE International (formerly the National Association of Corrosion Engineers), 1440 South Creek Drive, P.O. Box 218340, Houston, Texas 77218-8340. www.nace.org

[6]North American Society for Trenchless Technology, 1655 N Ft. Myer Drive, Suite 700, Arlington, Virginia 22209. www.nastt.org

[7]U.S. Department of Labor, Occupational Safety and Health Administration, 200 Constitution Ave. NW, Washington, DC 20210. www.osha.gov. *Note: OSHA Regulations are posted on, and can be downloaded from, the OSHA web site.*

[8]Pipeline Research Council International, Inc., 1401 Wilson Boulevard, Suite 1101, Arlington, Virginia, 22209. www.prci.org