ANSI/AWWA C605-05
(Revision of ANSI/AWWA C605-94)

American Water Works Association

The Authoritative Resource on Safe Water[SM]

AWWA Standard

Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water

American National Standards Institute

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AWWA Standard

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AWWA unites the entire water community by developing and distributing authoritative scientific and technological knowledge. Through its members, AWWA develops industry standards for products and processes that advance public health and safety. AWWA also provides quality improvement programs for water and wastewater utilities.

Committee Personnel

The AWWA Standards Subcommittee on Standard C605, which developed this standard, had the following personnel at the time:

Robert P. Walker, *Chair*

J.L. Diebel, Denver Water, Denver, Colo.	(AWWA)
J.F. Houle, PW Pipe, Eugene, Ore.	(AWWA)
J.H. Miller, JHM Enterprises, Mississauga, Ont.	(AWWA)
R.P. Walker, Uni-Bell PVC Pipe Association, Dallas, Texas	(UNI-BELL)

The AWWA Standards Committee on PVC Pressure Pipe and Fittings, which reviewed and approved this standard, had the following personnel at the time of approval:

Jon L. Diebel, *Chair*

Robert P. Walker, *Vice-Chair*

General Interest Members

John Calkins, Consultant, Wayne, Pa.	(AWWA)
J.P. Castronovo, CH2M Hill Inc., Gainesville, Fla.	(AWWA)
S.J. Cook, Malcolm Pirnie Inc., Maitland, Fla.	(AWWA)
Rod Holme, Earth Tech Canada, Markham, Ont.	(AWWA)
G.E. Laverick, Underwriters Laboratories Inc., Northbrook, Ill.	(AWWA)
J.H. Lee, Dayton & Knight Ltd., West Vancouver, B.C.	(AWWA)
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W.R. Whidden, Post Buckley Schuh & Jernigan Inc., Orlando, Fla.	(AWWA)
Ken Zastrow,† Underwriters Laboratories Inc., Northbrook, Ill.	(AWWA)

* Liaison, nonvoting

† Alternate

Producer Members

S.B. Gross, CertainTeed Corporation, Valley Forge, Pa.	(AWWA)
L.J. Gill, IPEX Inc., Mississauga, Ont.	(AWWA)
Greg Gundel, Specified Fittings Inc., Bellingham, Wash.	(AWWA)
J.F. Houle, PW Pipe, Eugene, Ore.	(AWWA)
John Riordan, HARCO Fittings, Lynchburg, Va.	(AWWA)
E.E. Schmidt, Diamond Plastics Corporation, Grand Island, Neb.	(AWWA)
R.P. Walker, Uni-Bell PVC Pipe Association, Dallas, Texas	(UNI-BELL)

User Members

J.L. Diebel, Denver Water, Denver, Colo.	(AWWA)
R.P. Fuerst, Bureau of Reclamation, Denver, Colo.	(AWWA)
Stephen Poole, Epcor Water Services, Edmonton, Alta.	(AWWA)
D.R. Young, Florida Cities Water Company, Sarasota, Fla.	(AWWA)

Contents

All AWWA standards follow the general format indicated subsequently. Some variations from this format may be found in a particular standard.

Foreword

This Foreword is for information only and is not a part of ANSI/AWWA C605.

I. Introduction.

I.A. *Background.* ANSI/AWWA C605, Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water, is offered as a reference to be used when constructing new water distribution systems and water transmission pipelines or when making repairs or extensions to existing water distribution systems and water transmission pipelines. This standard provides information on pipe handling, trench excavation, pipe installation, appurtenance placement, and preparation of pipelines for use. It is not intended that this AWWA standard be used as a contract document; however, it may be used as a reference in contract documents. This standard represents the consensus of the standards committee on the recommended practice for the proper installation of polyvinyl chloride (PVC) pressure water pipe. The standard is not intended to preclude the manufacture, marketing, purchase, or use of any product, process, or procedure.

I.B. *History.* This is the second edition of ANSI/AWWA C605. In 1978, the AWWA Standards Council authorized the AWWA Standards Committee on Thermoplastic Pressure Pipe to prepare a design and installation manual that would be followed by an installation standard for PVC pressure pipe. AWWA Manual M23, *PVC Pipe—Design and Installation*, was published in 1980. On completion of the manual, development of this standard began. The first edition was effective July 1, 1995.

In 1988, the AWWA Standards Committee on Thermoplastic Pressure Pipe was dissolved to allow for the formation of the AWWA Standards Committee on Polyvinyl Chloride (PVC) Pressure Pipe and Fittings. A new subcommittee was convened to resume work on the installation standard in 1989. This second edition of C605 was approved by the AWWA Board of Directors on June 12, 2005.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF International (NSF) to develop voluntary third-party consensus standards and a certification program for direct and indirect drinking water additives. Other members of the original consortium included the American Water Works Association Research Foundation (AwwaRF) and the Conference of State Health and Environmental

Managers (COSHEM). The American Water Works Association (AWWA) and the Association of State Drinking Water Administrators (ASDWA) joined later.

In the United States, authority to regulate products for use in, or in contact with, drinking water rests with individual states.* Local agencies may choose to impose requirements more stringent than those required by the state. To evaluate the health effects of products and drinking water additives from such products, state and local agencies may use various references, including

1. An advisory program formerly administered by USEPA, Office of Drinking Water, discontinued on Apr. 7, 1990.
2. Specific policies of the state or local agency.
3. Two standards developed under the direction of NSF, NSF†/ANSI‡ 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI 61, Drinking Water System Components—Health Effects.
4. Other references, including AWWA standards, *Food Chemicals Codex, Water Chemicals Codex,*§ and other standards considered appropriate by the state or local agency.

Various certification organizations may be involved in certifying products in accordance with NSF/ANSI 61. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdiction. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

Annex A, "Toxicology Review and Evaluation Procedures," to NSF/ANSI 61 does not stipulate a maximum allowable level (MAL) of a contaminant for substances not regulated by a USEPA final maximum contaminant level (MCL). The MALs of an unspecified list of "unregulated contaminants" are based on toxicity testing guidelines (noncarcinogens) and risk characterization methodology (carcinogens). Use of Annex A procedures may not always be identical, depending on the certifier.

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*Persons outside the United States should contact the appropriate authority having jurisdiction.

†NSF International, 789 N. Dixboro Road, Ann Arbor, MI 48105.

‡American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

§Both publications available from National Academy of Sciences, 500 Fifth Street N.W., Washington, DC 20418.

ANSI/AWWA C605 does not address additives requirements. Users of this standard should consult the appropriate state or local agency having jurisdiction in order to

1. Determine additives requirements, including applicable standards.
2. Determine the status of certifications by all parties offering to certify products for contact with, or treatment of, drinking water.
3. Determine current information on product certification.

II. Special Issues. There are no special issues related to this standard.

III. Use of This Standard. It is the responsibility of the user of an AWWA standard to determine that the products described in that standard are suitable for use in the particular application being considered.

III.A. *Purchaser Options and Alternatives.* The following items should be provided by the purchaser:

1. Standard used—that is, ANSI/AWWA C605, Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water, of latest revision.
2. Reference to applicable plans, drawings, specifications, and other contract documents (all sections).
3. Whether compliance with NSF/ANSI 61, Drinking Water System Components—Health Effects, is required, in addition to the requirements of the Safe Drinking Water Act.
4. Details and requirements of state, local, and provincial requirements (Sec. 1.5).
5. Materials inspection and acceptance requirements (Sec. 2.1).
6. Affidavit of compliance (Sec. 2.1).
7. Special provisions for conflicting utilities and responsibility for facilities and responsibility for the location, relocation, and repair of the conflicting facility or relocation of the pipeline if necessary (Sec. 3.1.3 and Sec. 3.2).
8. Notification requirements (Sec. 3.3).
9. Open trench, trench water, and trench stability requirements (Sec. 4.1).
10. Requirements for the protection of workers and the safety of the general public (Sec. 4.1.1).
11. Special provisions for excavation and trenching requirements (Sec. 4.2).
12. Trench width, depth, bottom preparation, rock conditions, previous excavation, blasting, unstable subgrade, dewatering, and excavated material requirements (Sec. 4.2).

13. Special trench foundations (Sec. 4.2.7).

14. Open trench, trench water, and trench stability requirements (Sec. 4.1).

15. Special embedment materials (Sec. 5.3).

16. Special provisions for testing, including the assignment of responsibility for providing and conveying water for flushing, testing, disinfection, and provisions for disposal of disinfection water. Assignment of responsibility for providing equipment for testing witnessing and required recording of test results (Sec. 7).

17. Special requirements for the method of disinfection, sampling, and analysis (Sec. 7). (See ANSI/AWWA C651, Standard for Disinfecting Water Mains, of latest revision.)

18. System design pressure, required test pressure and test duration (Sec. 7.3.5 and Sec. 7.3.4).

III.B. *Modification to Standard.* Any modification of the provisions, definitions, or terminology in this standard must be provided by the purchaser.

IV. Major Revisions. The revisions made to this edition of ANSI/AWWA C605 are minor. There are no major revisions.

V. Comments. If you have any comments or questions about this standard, please call the AWWA Volunteer & Technical Support Group at 303.794.7711, FAX at 303.795.7603, write to the group at 6666 West Quincy Avenue, Denver, CO 80235-3098, or email at standards@awwa.org.

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Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes underground installation and hydrostatic testing procedures for polyvinyl chloride (PVC) pressure pipe and fittings that comply with either ANSI*/AWWA C900, ANSI/AWWA C905, ANSI/AWWA C907, or ANSI/AWWA C909. It may be necessary to supplement this standard with provisions for special requirements not included in this standard (see Foreword, Sec. III). Such special requirements should be specified by the purchaser.

Sec. 1.2 Definitions

Under this standard, the following definitions shall apply:

1.2.1 *Constructor:* The party that furnishes the work and materials for placement or installation.

*American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.