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Standard Practice for Operation and Maintenance of Sewers with Optical Fiber Systems[1]

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1. Scope

1.1 This practice applies to the operation and maintenance of sewers with a subsequent installation of optical fiber cable in accordance with Practice F2303.

1.2 This practice applies to gravity flow storm sewers, sanitary sewers, and combined sewers.

1.3 This practice does not apply to force mains, siphons, or other pressurized sewers.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

F2303 Practice for Selection of Gravity Sewers Suitable for Installation of Optical Fiber Cable and Conduits

2.2 *ANSI Standard:*[3]

ANSI Z117.1-2003 Safety Requirements for Confined Spaces

2.3 *IEC Standards:*[4]

IEC 60825-1 Ed. 1.2, en 2001, Safety of Laser Products—Part 1: Equipment Classification, Requirements and User's Guide

IEC 60050-731 Electrotechnical Vocabulary: Optical Fiber Communications

2.4 *Federal Standard:*[5]

OSHA Regulation 29 CFR Part 1910.146, Permit-Required Confined Spaces

3. Terminology

3.1 *Definitions:*

3.1.1 *conduit, n*—tubing used to house optical fiber cable that is connected to, but separate from, a sewer pipeline.

3.1.2 *O&M, n*—operation and maintenance.

3.1.3 *optical fiber cable, n*—cable formed of one or more strands of optical fiber for transmission of data, video, audio, voice, or other information.

3.1.4 *optical fiber cable owner, n*—entity holding legal rights to, and responsible for the operation and maintenance of, the optical fiber cable. The optical fiber cable owner is also responsible for operation and maintenance of any components associated with the optical fiber system that are not part of the sewer pipeline as defined in this standard.

3.1.5 *optical fiber system, n*—group of components that comprise the elements necessary to enable optical fiber cable to be installed, maintained, and operated inside a sewer pipeline.

3.1.6 *sewers, n*—pipelines for the conveyance of wastewater or stormwater, or both.

3.1.7 *vault, n*—manhole, hand hole, or other buried enclosure used to store slack-loops of cable, fiber cable splices or provide access to the sewer for maintenance and inspection, or any combination thereof. Vaults designated only for optical fiber systems may be located within the street or off-street. Sewer vaults are typically located in the street and, as approved by the sewer pipeline operator, may serve the dual purpose of also housing optical fiber systems.

4. Summary of Practice

4.1 Sewers with optical fiber systems must be safely operated and maintained without significant negative impacts on sewer service and minimal impact on optical fiber system users. To satisfy that criteria, the equipment and practices must

[1] This practice is under the jurisdiction of ASTM Committee F36 on Technology and Underground Utilities and is the direct responsibility of Subcommittee F36.10 on Optical Fiber Systems within Existing Infrastructure.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

[4] Available from International Electrotechnical Commission (IEC), 3 rue de Varembé, Case postale 131, CH-1211, Geneva 20, Switzerland, http://www.iec.ch.

[5] Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, http://www.access.gpo.gov.