

August 26, 2019

Pennsylvania Public Utility Commission, Attn: Secretary,
400 North
Street, Harrisburg, PA 17120

**Re: Hazardous Liquid Public Utility Safety Standards;
Advanced Notice of Proposed Rulemaking**

Dear Commission Members:

The accurate spatial 3D location of hazardous pipelines is necessary for public safety. One need only look to the newspapers for confirmation, for example, last year's strike of the Mariner east 2 line due to an incorrect recorded depth. Once pipelines are buried, finding them safely becomes more difficult. This is true not only of hazardous pipelines, but all utilities. The American Society of Civil Engineers developed a standard in 2002 to address how to safely plan and design a project when there are existing buried utilities within the project limits. ASCE 38-02, now in revision, was studied by Penn State University for highway projects in 2007. It found an ROI of 2100% when using the standard versus projects not using the standard. Some of the ROI was attributed to enhancements in safety. A pipeline project is not that different from a highway project.

http://www.dot.state.pa.us/public/Bureaus/design/UTILITYS%20SHARED/PTI%202008-02%20Final%20Report%2024Oct07_s.pdf

Furthermore, PA ACT 287 specifically cites the use of "Utility Quality Levels" as defined in ASCE 38-02 for certain projects. **SECTION 6.1.** It shall be the duty of each project owner who engages in excavation or demolition work to be done within this Commonwealth: 1) To utilize sufficient quality levels of subsurface utility engineering or other similar techniques whenever practicable to properly determine the existence and positions of underground facilities when designing known complex projects having an estimated cost of four hundred thousand dollars (\$400,000) or more.

To our knowledge, this requirement has never been enforced in PA.

ASCE, in response to public needs, initiated a new standards activity in 2014 to complement ASCE 38-02. The pending new standard addresses how to prepare a utility "as-built" or certified record drawing during construction and before the pipeline is buried and hidden from view. The standard is expected to be published in 2020 (it is in balloting now) and will be called Standard Guideline for Recording and Exchanging Utility Infrastructure Data. These two standards combine to address project risks due to existing and newly installed utility infrastructure by classifying and eliminating utility location uncertainties. OMB Circular No. A-119 revised encourages the adoption of voluntary consensus standards by bodies such as ASCE.

We believe that the incorporation of language compatible with ASCE 38-02 (Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data) and the pending Standard Guideline for Recording and Exchanging Utility Infrastructure Data is in the public interest and will assist in reducing future utility strikes of PA Hazardous Pipeline Infrastructure. We offer the following language for consideration. We realize that this language may change slightly during the balloting process but we hope that the process is complete before passage of this new pending bill.

1. Location data for any newly installed hazardous pipeline infrastructure shall comply with ASCE’s pending Standard Guideline for Recording and Exchanging Utility Infrastructure Data (Utility as-built”). Rationale: This standard is designed to capture and convey 3D spatial information along with sufficient attribution to facilitate utilization of a myriad of emerging 3D software technologies, including augmented and virtual reality visualization, 3D design, BIM/CIM, machine guidance warning systems, and GPS aided locating, etc. which will enhance risk mitigating design and construction strategies along with damage prevention practices. The Open Geospatial Consortium (OGC) has adopted the language in the pending ASCE “As-Built” standard for their Model for Underground Data Definition and Integration (MUDDI) standard initiative. Developers of major software for CADD, BIM, GIS, and augmented reality applications and technologies comply with OGC standards; use of the ASCE “As-Built” standard will assure that pipeline data can be subsequently leveraged by these technologies to maximize worker and public safety, mitigate risk and damage, and promote strategic use of underground space.
 - a. Utility Features that are exposed while being installed underground (e.g., open trench, bore pits, test pits) shall be recorded at Accuracy Level 2. Trenchless installations shall be recorded to the highest Accuracy Level permitted with the available technology or as specified on a case by case basis, with minimal (M) attributes including:

ID	M
Owner	M
Utility Type	M
Feature Type	M
Component	M
Conveyance Category	M
Operational Status	M
Horizontal Spatial Reference	M
Vertical Spatial Reference	M
Horizontal Accuracy	M
Vertical Accuracy	M
XYZ	M
Data Sensitivity Level	Optional (O)

- b. Spatial coordinates shall be tied to the National Spatial Referencing System (NSRS) absolute datum which is managed by the National Geodetic Survey of the National Oceanic and Atmospheric Administration. Use of Global Navigation Satellite Systems (GNSS) such as Global Positioning System (GPS) makes compliance with this criteria a trivial matter.
2. During maintenance operations or inspection during crossings whereby an Underground Feature is exposed, that Feature shall be recorded within the limits of the excavation at a minimum of Accuracy Level 3.
3. Pipeline Location Data shall be furnished upon request to a PA-registered PE, PLS, or PG for the purposes of planning or designing a capital improvement project. Such location data of the Utility Feature within the geospatial footprint of the project shall be of the best accuracy available, and in accordance with the pending ASCE Standard Guideline for Recording and Exchanging Utility Infrastructure Data. Outside the geospatial limits of the project, but contiguous to the project, location data can be limited to the easement. If data security is of concern to the Operator, such information for that project may be withheld only upon specific permission of the PUC. If such data is withheld, Operator shall be responsible for all claims

resulting from the inaccurate location data accrued to the project. Value of the claim shall be adjudicated by the PUC or their proxy.

4. During Hazardous Pipeline Construction utilizing any trenchless method such as jacking, boring, tunneling, directional drilling, etc., the designer or constructor of the pipeline shall comply with ASCE 38 "Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data."
 - a. Within the proposed easement and the anticipated footprint of trenchless excavation, Utility Quality Level B (QLB) shall be attempted for known and unknown utilities. Utilities will be depicted at their actual achieved Utility Quality Level.
 - b. For all crossings of depicted utilities, Utility Quality Level A data shall be obtained, and retained by the Operator.
5. Pipeline Project Owners shall comply with PA Act 287.

Respectfully,

James H. Anspach, PG (r), Dist.M.ASCE, 2018 President ASCE Utility Engineering and Surveying Institute. Chair ASCE 38

Phillip J. Meis, PE. Chair, Standard Guideline for Recording and Exchanging Utility Infrastructure Data.