STATE OF WISCONSIN
Department of Agriculture,
Trade and Consumer Protection

Approval # 20180004
(Replaces 20130001)

Bureau of Weights and Measures
Storage Tank Regulation
P.O. Box 7837
Madison, WI 53707-7837

Wisconsin ATCP 93
Material Approval

Equipment: FlexWorks and FlexWorks Next Generation Nonmetallic Underground Secondary Containment Piping System.

Manufacturer: OPW Fueling Containment Systems
3250 US Highway 70 Business West
Smithfield, NC 27577

Expiration of Approval: December 31, 2021

SCOPE OF EVALUATION

The FlexWorks and FlexWorks Next Generation underground piping system as manufactured by OPW Fueling Components, were evaluated for use as petroleum product piping for underground storage tank systems in accordance with **ATCP 93.130(1)(b), 93.500(2), and 93.500(5)**, of the Wisconsin Administrative Code for Flammable and Combustible Liquids. This evaluation summary is condensed to provide the specific installation, application and operational parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – ATCP 93.

DESCRIPTION AND USE

The FlexWorks primary flexible piping system (designated as 'Cxx') is available in 0.75-in, 1-in., 1.5-in., 2-in., and 3-in. sizes with or without integral secondary containment (double-wall). The FlexWorks Next Generation flexible piping system (designated as "CxxA") with integral secondary containment is available in 0.75-in, 1-in., 1.5-in., 2-in., and 3-in. sizes. For both the FlexWorks and FlexWorks Next Generation secondary containment capability is provided by jacketing the primary pipe with a stand-off layer that is fabricated to produce an interstitial space (double-wall). The access pipe is optional for the FlexWorks and FlexWorks Next Generation piping as it is UL-Listed for direct burial.

TESTS AND RESULTS

FlexWorks flexible piping was found to comply with the current Underwriters Laboratories' requirements for this class of piping and is suitable for use in the distribution of petroleum products, alcohol, and alcohol-gasoline mixtures including Motor Vehicle Fuels, Concentrated Fuels, High Blend Fuels, Aviation and Marine Fuels, and biodiesel blends up to B20.

FlexWorks Next Generation flexible piping was found to comply with the current Underwriters Laboratories' requirements for this class of piping and is suitable for use in the distribution of petroleum products, alcohol, and alcohol-gasoline mixtures including Motor Vehicle Fuels, Concentrated Fuels, High Blend Fuels, Aviation and Marine Fuels, and biodiesel blends up to B20.

LIMITATIONS / CONDITIONS OF APPROVAL

FlexWorks and FlexWorks Next Generation Flexible Piping

- FlexWorks and FlexWorks Next Generation flexible piping is approved as meeting the design and construction standards for underground flexible piping as specified in **s. ATCP 93.500(2)** and **93.520(1)(a)1**.

- Critical performance parameters for the FlexWorks and FlexWorks Next Generation flexible piping:

Single and Double-Wall Pipe

FlexWorks and FlexWorks Next Gen. Pipe Size (in.)	Minimum Bend Radius (in.)[1]	Maximum Allowable Working Pressure (psi)	Bulk Modulus[2] (psi)
3/4	18	150	Contact Manufacturer
1	18	125	Contact Manufacturer
1 1/2	24	100	15,000
2	36	75	11,000
3	72	75	4,100

[1]: As measured in a horizontal plane into the tank or dispenser sump basin.
[2]: Calculated value assuming 73.4°F, nominal wall thickness, 50-year creep allowance, no contribution from barrier layer.

Access Piping

Flexworks Pipe Size (in.)	Minimum Bend Radius (in.)	Terminating Fitting Bend radius (in.)[1]	Bulk Modulus[2] (psi)
3,4	36	36	N/A

[1]: As measured in a horizontal plane into the tank or dispenser sump basin.
[2]: The Access piping is for not designed for carrying product; a bulk modulus value is not necessary for this application.

- FlexWorks and FlexWorks Next Generation flexible piping is approved for installation without the flex connectors specified in **s. ATCP 93.500(2)**. The entry angle for flexible pipe into a sump cannot exceed 15 ° off the center line in any direction.

- FlexWorks and FlexWorks Next Generation flexible piping is approved for underground (buried) installations only.

- The FlexWorks secondary containment jacket/double-wall piping and FlexWorks Next Generation double-wall piping, are approved for use as secondary barriers for interstitial monitoring systems in compliance with **s. ATCP 93.500(5) and 93.515(8)(c)2.**.

- Installation, use and maintenance of all products shall be in accordance with the manufacturer's recommendations, this approval, and requirements as listed in ATCP 93 and adopted standards. In the event of conflicts, the stricter requirement shall govern.

- Leak detection for the piping system shall be provided in accordance with **s. ATCP 93.515(8)**. The specific leak detection system must be shown on the plans that are submitted for review in accordance with **s. ATCP 93.100**. Automatic line leak detectors and interstitial monitoring methods must be specifically approved for use in accordance with **s. ATCP 93.130(1)(a)**. (Note: Evaluation of these leak detection methods with the standard EPA protocol does not demonstrate acceptability for use with flexible piping.)

This approval will be valid through December 31, 2021, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Material Approval Number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The Department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement unless specified in this document.

Effective Date: September 18, 2018
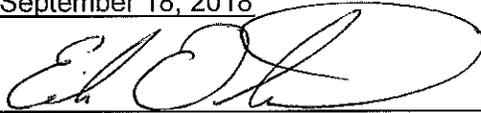
Reviewed by: _____ 9/18/18

Erik Otterson
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Approved by: _____ Date: September 18, 2018

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