



North Carolina Department of Environment and Natural Resources
Division of Waste Management

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Henry Hutson
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3048 Thoroughfare Rd
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Subject: General Industries Double-Wall, Steel-Jacketed Permatanks (550 to 20,000 gallons) with Continuous Interstitial Monitoring Through Liquid-Detecting Sensors and Periodic Interstitial Tightness Tests

Mr. Hutson:

Pursuant to your request, the North Carolina Department of Environment and Natural Resources (NCDENR) – Underground Storage Tank (UST) Section has evaluated the General Industries double-wall, steel-jacketed Permatank for compliance with 15A NCAC 2N .0901 and .0903, when used in conjunction with continuous interstitial monitoring consisting of a liquid-detecting sensor and periodic interstitial tightness tests.

As you may recall, underground storage tanks installed on or after November 1, 2007, must be of double-wall construction, and with respect to leak detection, include continuous interstitial monitoring via a:

- 1) vacuum-based method
- 2) pressure-based method
- 3) hydrostatic-based method, or
- 4) through the use of a liquid-detecting sensor located at the lowest point within the interstice, with the position certifiable of such, and with periodic interstitial tightness tests conducted at installation, within six to twelve months of installation and every three years thereafter, using a test method that is third-party certified to detect a leak rate of 0.1 gallon per hour from both the inner and outer wall

Based on the submitted information, as well as information submitted by Steel Tank Institute (STI) on July 29, 2010, it appears that the subject tanks when used with a liquid-detecting sensor and periodic interstitial tightness tests will comply with 15A NCAC 02N.0901 and .0903, provided that the following conditions are maintained:

1. The third-party certified liquid-detecting sensor must be installed and maintained at the lowest point within the interstice and must include a means to verify its position (e.g., a position-sensitive sensor). In addition, the sensor must be installed in accordance with all appropriate manufacturers' written guidelines (e.g., General Industries' "Proper Installation and Position of Leak Sensor for General Industries Permatank"). These instructions will need to be provided to all customers/contractors that plan to install the subject tanks in North Carolina. In addition, tank owners or operators will need to test the sensor and maintain written records documenting the operability check in accordance with the manufacturer's guidelines and 15A NCAC 02N .0901. The annual operability check will also need to document the "Sensor Out" alarm and "normal" conditions for position-sensitive sensors.

Specific to your submittal, our records show that General Industries has evaluated the Veeder Root 794380-323 position-sensitive liquid-detecting sensor for use with the General Industries Permatank. If the Veeder Root 794380-323 sensor will be used within the interstice, the specific tank must be constructed with a monitoring tube of sufficient tolerance to allow the sensor to be installed properly. As some USTs need to be specially manufactured with a non-standard monitoring tube for this purpose, the tank manufacturer should provide documentation (e.g., a cross-sectional drawing of the tank specifically showing the diameter of the monitoring tube) for submittal with the UST-6A "Application to Install or Replace Underground Storage Tank Systems (Pre-Installation)" anytime a tank is being proposed for installation.

2. Periodic integrity testing of the tank interstitial space must be conducted in accordance with a third-party certified test capable to detecting a 0.10 gallon per hour leak rate from either the inner or outer wall of the UST with a probability of detection of at least 95% and a probability of false alarm of no more than 5%. These interstitial tightness tests must be conducted before UST system startup, between six and twelve months of startup and every three years thereafter. Written records of the test results and parameters must be maintained, as required by 15A NCAC 02N.0903. Please note, that many third-party certified interstitial tightness tests have only been evaluated with tanks of a certain capacity and/or diameter, and as such it is very important to verify that the tanks proposed for construction will have a third-party certified test method available to them.

Specific to your submittal, the only third-party certified interstitial tightness test currently available for Permatanks is documented in the publication: "Evaluation of the Permatank Interstitial Monitor for Detection of Liquid Leaks", prepared for the Steel Tank Institute, as revised by Ken Wilcox Associates, Inc (KWA) on July 29, 2010. As such, all interstitial tightness tests performed on Permatanks must be done in accordance with the specific test procedure on Page 15 of the KWA Report and for the longest duration specified for the specific tank capacity/diameter on Table 1 of the KWA Report. If the specific tank capacity/diameter combination is not listed on Table 1, or in other words was not evaluated by KWA, then the test method is not an option for that particular tank.

Be advised that any tanks, monitoring equipment or testing procedures that are not specifically listed herein must be separately evaluated by this Department for compliance with the applicable regulations prior to its use. Feel free to contact me if you have any questions regarding this letter.

Sincerely,



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