Wisconsin
Department of Commerce

Approval # 20000007
(Replaces 960027-U)

Environmental & Regulatory Services Division
Bureau of Storage Tank Regulation
201 West Washington Avenue
P.O. Box 7837
Madison, WI 53707-7837

Wisconsin COMM 10 Material Approval

Equipment: TMS 2000 & TMS 3000 Tank Management Systems for Automatic Tank Gauging, Tank Tightness Testing, & Liquid and Vapor Product Detection

Manufacturer: Pneumercator Company, Inc.
120 Finn Court
Farmingdale, NY 11735

Expiration of Approval: December 31, 2006

SCOPE OF EVALUATION

The TMS 2000 and TMS 3000 Tank Management Systems with the Ametek Patriot 7100 series magnetostrictive tank probes and the LS600 series, LS610, RSU80x series, HS100 series and ES825 series detectors/sensors, as manufactured by Pneumercator Company, Inc., have been evaluated for conformance with the current edition of the Wisconsin Flammable and Combustible Liquids Code, **ss. Comm 10.61(4)(a); Comm 10.61(7);** and **Comm 10.51(3)**. The test procedures addressed only each method's ability to detect leaks, and not safety hazards.

This approval has been based upon Commerce evaluation of information submitted by the manufacture and third party evaluation and is considered confidential. Specific information relating to qualifying the information submitted should be made to the manufacturer or submitter.

DESCRIPTION AND USE

Automatic Tank Gauging Systems:

Pneumercator TMS 2000 and TMS 3000 Tank Management Systems with Ametek Patriot 7100 series magnetostrictive tank probes are approved as complying with **s. COMM 10.61(4)(a)** under the following criteria:

The systems may be used for tanks containing gasoline, diesel fuel, aviation fuel, #2 and #4 heating oil, most gear oils and lubricants and some solvents. Number 6 heating oil may be gauged for inventory only and only if the product is heated.

The systems test for water incursion. The minimum water level in the tank that the system can detect is approximately 1/2 inch. The minimum change in water level that can be detected by the system is approximately 1/8 inch provided the water level is above the threshold.

Leak Detection Sensors:

RSU800 Liquid Float-switch Sensor

RSU800 sensor is a liquid float switch designed for hydrostatic liquid monitoring of double wall fiberglass tanks where the interstice between the walls of the tank are filled with a brine or glycol solution. The sensor is installed in a reservoir chamber and actuates a dual point switch which activates an alarm on the console when the brine or glycol level rises or falls to the levels of the sensor thresholds.

The low level alarm threshold is approximately 2.3 inches from the bottom of the sensor. The high level alarm threshold is approximately 13.0 inches above the bottom of the sensor.

The time to alarm is less than one second after the liquid level exceeds the thresholds. The alarm is not maintained if the liquid level changes so that it no longer exceeds the thresholds.

The ability to detect a release of product into the interstice to meet the requirements of **s. Comm 10.61(7)** will depend on reservoir geometry and sensor placement.

LS600 LDBN Liquid Float-Switch Sensor

The LS600 LDBN is a float actuated leak sensor with one magnetic Buna-N float only. When used with the correct console, an alarm is activated when the switch is activated. The alarm threshold for the LS 600 LDBN is approximately one inch from the bottom of the sensor.

LS610 Liquid Float-Switch Sensor

The LS610 consists of a flat float that swivels up and down on a square shaped body. The float actuates a switch when the liquid level rises to the threshold activating the console alarm. The alarm threshold for the LS610 is approximately 0.4 inches from the bottom of the sensor.

LS600 AB Overfill Alarm

The LS600 AB switch consists of from one to four magnetic floats mounted on a brass or stainless steel tube suspended into the top of a liquid storage tank. Each float actuates a switch when the liquid level rises or falls past the float. When used with the appropriate console, an alarm is activated when the switch is activated. The alarm threshold for the LS600 AB is approximately 3.3 inches from the bottom of the sensor.

The ability of the LS600 AB to activate the console alarm to meet **s. Comm 10.51(3)** will depend on tank geometry, sensor placement and the rate the tank is filled.

HS100 Series Wet Well Groundwater Sensor

The HS100 series sensors use a variable-resistance polymer strip that extends the entire depth of the monitoring well. The sensor will detect a minimum depth of 1/32-inch of hydrocarbon floating on water in the monitoring well. The monitoring well must contain a minimum of 3 inches of groundwater. A float switch at the base of the sensor provides an alarm if the water in the well drops below 3 inches.

ES825 Series Liquid Sensors

The ES825-100 sensor is a non-discriminating sensor utilizing electro-optical technology to detect the presence of liquid. The ES825-200 sensor is a product discriminating sensor utilizing both electro-optical and conductivity technologies to discriminate between water and hydrocarbons. Both sensors have a fault-detect option that allows the TMS to continually monitor for sensor or wiring faults.

LIMITATIONS / CONDITIONS OF APPROVAL

Automatic Tank Gauging Systems:

The systems may be used for tanks containing gasoline, diesel fuel, aviation fuel, #2 and #4 heating oil, most gear oils and lubricants and some solvents. Number 6 heating oil may be gauged for inventory only and only if the product is heated.

Parameters applicable to all testing	
Minimum wait time after filling tank	8 hours
Maximum tank size	75,000 gallons

For Tank Capacities 20,000 Gallons or less:

Minimum product level required for testing	20% of total tank capacity
0.1 gal/hr leak rate	
Minimum length of time to conduct test	7 hours*
0.2 gal/hr leak rate	
Minimum length of time to conduct test	2 hours*

For Tank Capacities Greater Than 20,000 Gallons:

Minimum product level required for testing	50% of total tank capacity
0.2 gal/hr leak rate	
Minimum length of time to conduct test	8 hours*

* The probabilities involved in detecting leaks and minimizing false alarms improve with longer test times. There are no acceptable deviations in the standard test protocol.

Leak Detection Sensors:

RSU800 Liquid Float-Switch Sensor

The RSU800 Liquid Float Switch Sensor, used with the TMS console is approved for use as an interstitial monitor for use with double wall tanks with brine or glycol filled interstices in accordance with **s. Comm 10.61(7)(a)**. Interstice geometry and sensor placement must be shown to allow detection of a 0.2 gallon per hour leak from the primary containment within 30 days given the sensor alarm threshold heights.

LS600 LDBN and LS610 Liquid Float-Switch Sensors

The LS600 LDBN and LS610 Sensors, when used with the TMS console are approved for use as interstitial monitors for use on double wall tanks and sumps in a dry annular space in accordance with **s. Comm 10.61(7)(a)**. Interstice and sump geometry and sensor placement must be shown to allow detection of a 0.2 gallon per hour leak from the primary containment within 30 days given the sensor alarm threshold heights.

LS600 AB Liquid Float-Switch Sensor - Overfill Alarm

The LS600 AB liquid float-switch sensor, used with the TMS console may be used as overfill prevention equipment to comply with **s. Comm 10.51(3)**. Tank geometry, sensor placement and fill rate must be shown to allow activation of the alarm one minute prior to overfilling given the specific sensor alarm threshold height.

All Equipment

Installation, testing and maintenance of all equipment shall be performed in accordance with manufacturer's recommendations.

This approval will be valid through December 31, 2006, unless manufacturing modifications are made to the products, or a reevaluation is deemed necessary by the Department. The Wisconsin Material Approval Number must be provided when plans that include these products 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.

Reviewed by: _____

Greg Bareta
Engineering Consultant
Bureau of Storage Tank Regulation

Approved by: _____ Date: _____