



Approval # 20020011  
(Replaces 960037-U)

Environmental & Regulatory Services Division  
Bureau of Petroleum Products and Tanks  
201 West Washington Avenue  
P.O. Console 7837  
Madison, WI 53707-7837

## Wisconsin COMM 10 Material Approval

Equipment: INCON TS-504 and TS-508 Inventory Control Systems; TS-750, TS-1000, TS-1001, and TS-2001 Leak Detection Systems; SCALD Continuous Automatic Leak Detection System; TS-LLD Line Leak Detection System; and TSP Series Sensors<sup>1</sup>

Manufacturer: Intelligent Controls, Inc.  
P.O. Box 638  
Saco, ME 04072

Expiration of Approval: December 31, 2007

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### SCOPE OF EVALUATION

The INCON TS-750, TS-1000, TS-1001, and TS-2001, Automatic Tank Gauging (ATG) Systems manufactured by Intelligent Controls, Inc., were evaluated as a means of monthly monitoring in accordance with s. **Comm 10.61 (4)**, and as a means of tank tightness testing in accordance with s. **Comm 10.61 (3)** of the Wisconsin Flammable and Combustible Liquids Code.

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<sup>1</sup> Note: The TS-2000 ATG has been discontinued and is no longer supported by Intelligent Controls, Inc. For systems previously installed with the TS-2000 system, reference Material Approval 960037-U.

The INCON Statistical Automatic Continuous Leak Detection (SCALD) system was evaluated as a means of continuous statistical leak detection for underground tanks in accordance with **s. Comm 10.61 (4)**.

INCON sensor models TSP-EIS, TSP-ULS, TSP-DIS, TSP-DDS, TSP-DTS, and TSP-HIS, were evaluated as a means of interstitial and containment sump monitoring in accordance with **s. Comm 10.61 (7)**. INCON sensor model TSP-HLS was evaluated as a high-level overflow protection sensor to be installed in accordance with **s. Comm 10.51(3)(a)2.b.** .

The INCON TS-LLD Electronic Line Leak Detection System, was evaluated as a means of automatic line leak detection and line tightness testing for both rigid and flexible piping in accordance with **s. Comm 10.615 (1) and (2)**.

This evaluation summary is condensed to provide the specific installation, application and operation parameters necessary to maintain the subject systems in compliance with the Wisconsin Administrative Code – Comm 10.

## **DESCRIPTION AND USE**

The various INCON Tank Sentinel ATG systems with or without SCALD may be used on tanks that contain gasoline, diesel, aviation fuel, #4 fuel oil, and some solvents.

### **Tank Sentinel Inventory Control System<sup>2</sup>**

The INCON TS-504 and TS-508 Inventory Control system consist of a console and probe combination that measure inventory levels in underground and aboveground tanks. The system consists of either the TS-504 or TS-508 console; the TSP-LL2-NNNI (NNN = shaft length) or TSP-LL2 magnetostrictive probe; and the appropriate float for the product type.

### **Tank Sentinel Leak Detection System**

The INCON TS-750, TS-1000, TS-1001, and TS-2001, Automatic Tank Gauging (ATG) Systems, consist of a console and probe combination that can be used as either a monthly monitoring or tightness testing leak detection system in underground tanks. The standard ATG probe is a magnetostrictive probe that senses the liquid level. Each probe has temperature sensors that are used to correct the level for temperature effects. A water sensor is used to detect water ingress.

**The TS-750, TS-1000, TS-1001, and TS-2001 with the magnetostrictive probe can perform both tightness testing (0.1 gph) and automatic tank gauging (0.2 gph) on tanks with a capacity up to 15,000-gallons.**

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<sup>2</sup> The INCON TS-504 and TS-508 Inventory Control Systems are approved for use as part of a valid leak detection methodology for UST systems that use either Manual Tank Gauging, Inventory Control, or Statistical Inventory Control (SIR) only. The TS-504 and TS-508 systems are not capable of performing any tank tightness testing.

Due to the variation in liquid levels caused by dynamic environmental conditions that AST's experience, the TS-504 and TS-508 systems are not approved for use as a leak detection methodology for AST's. At the present time, there is no requirement for leak detection systems on AST's, other than interstitial monitoring on double wall tanks.

The **TS-750, TS-1000, TS-1001, and TS-2001** with the **TSP-LL2 series probe** can perform only automatic tank gauging, **not tightness testing**, on tanks with a capacity up to 30,000-gallons.

*Note: For all models, monthly and annual testing can only be performed on one tank at a time. If several tanks are manifolded together, an isolation valve has to be installed so as to separate the tanks individually during testing.*

#### Tank Sentinel Leak Detection System w/SCALD

The INCON TS-750, TS-1000, TS-1001, and TS-2001, Automatic Tank Gauging (ATG) Systems with Statistical Continuous Automatic Leak Detection (SCALD), consist of a console and probe combination (TSP-LL2 series) that can be used as a monthly monitoring leak detection system in underground tanks. With the SCALD system, up to 3 tanks can be manifolded together.

When used for continuous statistical leak detection (monthly monitoring), the system determines when the tank is stable enough to begin data collection. At the beginning of each month, the Tank Sentinel activates its "quiet time" search. This is performed continuously until enough valid data is acquired to calculate a leak rate on the data collected. If it passes the 0.2 gph test, the test is recorded, and the test cycle is started over. At the end of the 30-day period the last good test result is recorded in the permanent tank testing record. If the leak rate does not pass, or if the data was insufficient for performing the calculation, the testing continues until a passing test occurs. A report can be generated either automatically or manually every 30 days showing the final results.

#### Electronic Line Leak Detector

The TS-LLD system may be used on pipelines containing gasoline, diesel, aviation fuel, and fuel oil #4.

The TS-LLD system is available in two configurations, either as a stand-alone system or interfaced directly with the TS-1001 or TS-2001 Tank Sentinel ATG. Regardless of which configuration, both are connected to a thermally activated flowmeter that is installed in the submersible pump. The control console contains a microprocessor that utilizes information provided by the flowmeter and an algorithm to determine whether or not a leak is present. The TS-LLD system has three leak detection modes - Hourly, Monthly, and Annual.

Hourly Tests for 3 gal/h leaks are automatically initiated each time that the pump is turned off. The Hourly Tests last for 3 minutes. If the line fails the Hourly Test, the system will automatically disable the pump and the control console will indicate that a leak has been detected. If the line passes the Hourly Test, the system begins conducting a Monthly Monitoring Test.

Monthly Monitoring for 0.20 gal/h leaks is automatically initiated each time that the pump is turned off and as soon as an Hourly Test has passed. Monthly Monitoring Tests can typically vary in length from 50 minutes to 8 hours depending upon line and product conditions. If the pump is turned on while the monthly Monitoring test is in progress, the test will abort. The

control console indicates the number of days that have passed since a Monthly Monitoring test has been passed. If a line fails the monthly test, the control console will indicate this.

The Annual Line Tightness Test for 0.10 gal/h leaks must be manually started. INCON specifies that an 8 hour waiting period must occur after the pump has been turned off before a valid annual test can be conducted. An annual test lasts for exactly 40 minutes. If a line fails the annual test, the control console will indicate this.

### Liquid Sensors

The INCON TS-504, TS-508, TS-750, TS-1000, TS-1001, and TS-2001 systems have the ability to work with all of the sensors that are described in this section unless otherwise indicated.

The model **TSP-EIS** electro-optic point liquid sensor is used for monitoring the dry interstitial space of double wall fiberglass and steel tanks. It is also suitable for use in containment sump spaces. When the sensor comes in contact with a liquid, it sends a signal to the console that will warn of the presence of a liquid. In fiberglass tank interstitial spaces, the sensor is fished around the outside of the inner wall of the tank and located on the bottom. In steel double wall tanks, the sensor is lowered down to the bottom of the 2" riser pipe that provides access to the interstitial space. If the sensor is used in containment sumps, it is placed on the bottom of the sump.

The model **TSP-ULS** is a universal liquid sump sensor used in monitoring containment sumps to detect for the presence of a liquid. It is also used as an interstitial sensor on steel double wall tanks. When the sensor comes in contact with a liquid, it sends a signal to the console that warns it of the presence of a liquid. It is based on a float switch technology. In containment sumps, the sensor is placed on the bottom of the sump. In steel double wall tanks, the sensor is lowered down to the bottom of the 2" riser pipe that provides access to the interstitial space.

The model **TSP-HLS** is a high level overflow prevention sensor. It is used to prevent the overflow of underground and aboveground storage tanks. It installs in a 2" NPT opening in the top of the tank. It is based on float switch technology.

The model **TSP-DIS** is a discriminating liquid sensor, which may be used to monitor the interstitial space of double wall tanks, sumps or other locations where the presence of liquid indicates a leak. The sensor discriminates between petroleum and water, issuing different alarms for each. In fiberglass tank interstitial spaces, the sensor is fished around the outside of the inner wall of the tank and located on the bottom. In steel double wall tanks, the sensor is lowered down to the bottom of the 2" riser pipe that provides access to the interstitial space. If the sensor is used in containment sumps, it is placed on the bottom of the sump.

The model **TSP-DDS** is a discriminating liquid sensor that provides reliable monitoring of dispenser pans and containment sumps. The TSP-DDS combines magnetic float switch sensors with an innovative polymer strip that reacts to hydrocarbons. The sensor discriminates between water and hydrocarbons, issuing different alarms for each. Three different alarms are generated by the sensor; water in the sump, product detected, and sump full. The sensor is installed in dispenser and containment sumps using a uni-strut bracket assembly that mounts to

the sump piping. The sensor is mounted vertically in the sump with the bottom of the sensor touching the bottom of the sump.

The model **TSP-DTS** is a discriminating liquid sensor that provides reliable monitoring of turbine and containment sumps. The TSP-DTS combines magnetic float switch sensors with an innovative polymer strip that reacts to hydrocarbons. The sensor discriminates between water and hydrocarbons, issuing different alarms for each. The sensor generates three different alarms; water in the sump, product detected, and sump full. The sensor is installed in turbine and containment sumps using a uni-strut bracket assembly that mounts to the sump piping. The sensor is mounted vertically in the sump with the bottom of the sensor touching the bottom of the sump.

The model **TSP-HIS** is a hydrostatic interstitial sensor used to monitor the brine level in double wall fiberglass tanks. The sensor contains two floats; one for a low brine condition and one for a high brine condition. The console will generate a low brine alarm in the event the brine level drops below the bottom float and a high brine alarm if the brine level goes above the top float. The sensor is mounted vertically in the reservoir area and rests on the bottom of the reservoir.

## **TESTS AND RESULTS**

Testing of the INCON TS-750, TS-1000, TS-1001, and TS-2001 systems for monthly monitoring and tank tightness testing was conducted in accordance with the EPA Automatic Tank Gauging Systems protocol. When using leak declaration thresholds of 0.05 gph and 0.10 gph, the probabilities of detection of a leak of 0.10 and 0.20 gph, respectively, were certified to within the 95-5 ranges required by the EPA protocols.

Testing of the INCON TS-750, TS-1000, TS-1001, and TS-2001, Automatic Tank Gauging (ATG) Systems with Statistical Continuous Automatic Leak Detection (SCALD) continuous statistical leak detection was conducted in accordance with a modified version of the EPA Automatic Tank Gauging Systems protocol. When using a leak declaration threshold of 0.07 gph, the probabilities of detection and false alarm were certified to within the 95-5 ranges required by the EPA protocols.

### **Electronic Line Leak Detector**

Testing of the INCON Electronic Line Leak Detector for hourly, monthly, and annual pipeline tightness testing was conducted in accordance with either the EPA Pressurized Pipeline Leak Detection Systems protocol (rigid piping) or a modified version of same protocol adapted for flexible piping. When using leak declaration thresholds of 1.5 gph, 0.10 gph, and 0.05 gph, the probabilities of detection for a leak of 3.0, 0.20 and 0.10 gph, respectively, were certified to within the 95-5 ranges required by the EPA protocols.

### **Liquid Sensors**

Testing of the liquid and brine sensors were conducted in accordance with a modified version of the EPA Standard "Liquid-Phase Product Detectors" protocol.

**MONITORING SYSTEM OUTPUT**

Detailed here are examples of the typical Alarm Report, Tank Leak Report, Tank Auto Leak Report, and Line Leak Test Report.

<pre> INCON INTELLIGENT CONTROLS INC P.O. BOX 638 SACO ME 040722  08/13/1998                10:16 AM          LEAK TEST REPORT  (TANK NAME)                5014.3 GAL   (PRODUCT NAME)  LEAK TEST                   0.100 G/H LEAK THRESHOLD              0.050 G/H CONFIDENCE LEVEL            99.0% TEST STARTED                21:45 TEST STARTED                10/17/98 GROSS CAPACITY              56.12% BEGIN GROSS                 2814.2 GAL BEGIN NET                   2808.8 GAL BEGIN LEVEL                 52.630 BEGIN TEMP                  62.720 F BEGIN WATER                 0.0130 IN END TIME                    2:39 END DATE                    10/19/98 END GROSS                   2814.3 GAL END NET                     2808.6 GAL END LEVEL                   52.632 IN END TEMP                    62.878 F END WATER                   0.4 GAL END WATER 0.131 IN          HOURLY DATA  TIME          DEG F          GAL 22:44        62.721         2809.23 23:44        62.751         2808.78   0:44        62.885         2809.07   1:44        62.883         2809.9  SLOPE                -0.04 GAL/HR SLOPE LOW             -0.04 GAL/HR SLOPE HIGH           -0.04 GAL/HR TEST RESULTS          PASSED SLOPE EQUALS CALCULATED LEAK RATE                 </pre>	<pre> INCON INTELLIGENT CONTROLS INC P.O. BOX 638 SACO ME 040722  08/13/1998                10:16 AM          LINE COMPLIANCE REPORT  LINE NO. 1                REGULAR          PASSED MONTHLY TESTS  TEST TIME                1:42 AM TEST DATE                08/12/1998 LINE TEST                0.20 GPH LEAK RATE                0.00 GPH  TEST TIME                11:12 PM TEST DATE                07/14/1998 LINE TEST                0.20 GPH LEAK RATE                0.00 GPH  LINE NO. 2                MID GRAD          PASSED MONTHLY TESTS  TEST TIME                8:15 AM TEST DATE                08/11/1998 LINE TEST                0.20 GPH LEAK RATE                0.00 GPH  TEST TIME                4:41 AM TEST DATE                07/14/1998 LINE TEST                0.20 GPH LEAK RATE                0.00 GPH                 </pre>
<p><b>Tank Leak Report Example</b></p>	<p><b>Line Leak Report Example: Monthly</b></p>

<p style="text-align: center;">INCON INTELLIGENT CONTROLS INC P.O. BOX 638 SACO ME 040722</p> <p>08/13/1998 10:16 AM</p> <p style="text-align: center;">SCALD TEST REPORT</p> <p>TANK 1 11882.3 GAL (PRODUCT NAME)</p> <p>LEAK TEST 0.200 GPH LEAK THRESHOLD 0.100 GPH EXTENT 18.0 HRS VOL QUALIFY 0.0% TEST STARTED 12:22 PM TEST STARTED 08/07/1998 SALES RATE 54.731 GPH EVAPORATED 1.781 GAL LOST 0.327 GAL DUTY FACTOR 0.31 UPDATED 12:40 AM UPDATED 08/10/1998</p> <p>SLOPE -0.002 GAL/HR TEST RESULT PASSED SLOPE EQUALS CALCULATED LEAK RATE</p>	<p style="text-align: center;">INCON INTELLIGENT CONTROLS, INC SACO, ME 04072</p> <p>08/11/1998 8:27 PM</p> <p>ACTIVE ALARMS</p> <p>08/11/1998 8:26 PM LOW BRINE LEVEL SENSOR 8 SENSOR NO. 8</p> <p>08/11/1998 8:26 PM PRINTER OUT OF PAPER</p> <p>08/11/1998 8:26 PM STANDARD SENSOR SENSOR 7 SENSOR NO. 7</p> <p>08/11/1998 7:05 PM HIGH PRODUCT LIMIT TANK NO. 1</p>
<p><b>Auto Leak Report Example:</b> Current status of 24-hour leak detection (SCALD).</p>	<p><b>Sensor Status Report Example</b></p>

INCON INTELLIGENT CONTROLS INC		
P.O. BOX 638		
SACO ME 040722		
08/13/1998		10:16 AM
REGULATORY REPORT		
HARDWARE STATUS		
TS-CIM		NOT INSTALLED
TS-ROM		NOT INSTALLED
TS-SEM 1		NOT INSTALLED
IO MOD 1		NOT INSTALLED
PRINTER		OPERATIONAL
FAX/MOD		OPERATIONAL
PROBES		
PROBE 1		OPERATIONAL
PROBE 2		OPERATIONAL
SENSORS		
SENSOR 1		OPERATIONAL
SENSOR 2		OPERATIONAL
SENSOR 3		OPERATIONAL
LINES		
LINE NO. 1		OPERATIONAL
LINE NO. 2		OPERATIONAL
AUXILIARY INPUTS		
AUX IN 1		OPERATIONAL
AUX IN 2		OPERATIONAL
PASSED LEAK TESTS		
TANK 1		
08/26/1998		7:42 PM
LEAK TEST		0.20
SLOPE		-0.03
(PASSED LEAK TESTS, PASSED SCALD TESTS, and PASSED LINE TEST REPORT results are all presented in the format used for the PASSED LEAK TEST for TANK 1, shown above)		

Regulatory Report Example



## **LIMITATIONS / CONDITIONS OF APPROVAL**

### **General**

- All monitoring equipment shall be installed, calibrated, operated, and maintained in accordance with the manufacturer instructions, and certified every 12 months for operability, proper operating condition, and proper calibration. Records of sampling, testing, or monitoring shall be maintained in accordance with Comm 10.625
- The manufacturer shall submit for a revision to this Wisconsin Material Approval application if any of the functional performance capabilities of this equipment are revised. This would include, but not be limited to changes in software, hardware, or methodology.
- While 3<sup>rd</sup> party testing does determine a required minimum tank level, EPA leak detection regulations require testing of the portion of the tank system which routinely contains product. Consistent testing at low levels could allow a leak to remain undetected.

During leak testing, a minimum level of product in tank shall be maintained so as to ensure testing of the portion of the tank and/or piping that routinely contains product, regardless of testing system capability. For instance, if product levels are routinely maintained at 60%, but the leak detection system is capable of testing at 15% product level, then testing shall be performed at 60% levels.

- If performing a tank tightness test, minimum tank level shall be 95%, regardless of leak detection system capability, in accordance with **Comm 10.61 (3)**.

**Tank Sentinel TS-750, TS-1000, TS-1001, and TS-2001 ATG's** (static 0.2 gph monthly monitoring and 0.1 gph tightness testing)

- Critical performance parameters for the TS-750, TS-1000, TS-1001, and TS-2001 ATG's with the **magnetostrictive probes**:

<b>Parameter</b>	<b>Value</b>
Maximum Tank Size <sup>1</sup>	<b>Up to 15,000 gallons</b>
Software Version	<b>N/A</b>
Minimum Tank Level	Minimum product level is based on tank diameter as follows: <b>24" dia/min 9";</b> <b>36" dia/min 10.5";</b> <b>48" dia/min 12";</b> <b>52" dia/min 12.5";</b> <b>64" dia/min 14";</b> <b>72" dia/min 15";</b> <b>76" dia/min 15.5";</b> <b>84" dia/min 16.5";</b> <b>96" dia/min 17.5";</b> <b>108" dia/min 19";</b> <b>120" dia/min 21";</b> <b>126" dia/min 21.5";</b> <b>132" dia/min 22";</b> <b>144" dia/min 23.5";</b>
Waiting time between filling tank and test start <sup>2</sup>	<b>6 hours minimum</b>
Waiting time between dispensing and test start	<b>None</b>
Test Period <sup>3</sup>	<b>Variable based on quality of test data. Average times<sup>4</sup>:</b> <b>5 hrs. 10 min. (monthly-0.2 gph)</b> <b>5 hrs. 44 min. (annual-0.1 gph)</b>

1: Monthly and annual testing can only be performed on one tank at a time. If several tanks are manifolded together, an isolation valve will have to be installed so as to separate the tanks individually.

2: There must be no delivery during waiting time.

3: There must be no delivery or dispensing during testing.

4: System automatically determines minimum time based on test conditions being met. Test times will generally be longer for larger tanks.

**Tank Sentinel TS-750, TS-1000, TS-1001, and TS-2001 ATG's** (static 0.2 gph monthly monitoring only)

- Critical performance parameters for the TS-750, TS-1000, TS-1001, and TS-2001 ATG's with the **TSP-LL2 series probes**:

<b>Parameter</b>	<b>Value</b>
Maximum Tank Size <sup>1</sup>	<b>Up to 30,000 gallons</b>
Software Version	<b>N/A</b>
Minimum Tank Level	Minimum product level is based on tank diameter as follows: <b>24" dia/min 9";</b> <b>36" dia/min 10.5";</b> <b>48" dia/min 12";</b> <b>52" dia/min 12.5";</b> <b>64" dia/min 14";</b> <b>72" dia/min 15";</b> <b>76" dia/min 15.5";</b> <b>84" dia/min 16.5";</b> <b>96" dia/min 17.5";</b> <b>108" dia/min 19";</b> <b>120" dia/min 21";</b> <b>126" dia/min 21.5";</b> <b>132" dia/min 22";</b> <b>144" dia/min 23.5";</b>
Waiting time between filling tank and test start <sup>2</sup>	<b>4 hours minimum<sup>3</sup></b>
Waiting time between dispensing and test start	<b>2 hours minimum</b>
Test Period <sup>4</sup>	<b>Variable based on quality of test data. Average time<sup>5</sup>: 6 hrs. 51 min.</b>

1: Monthly and annual testing can only be performed on one tank at a time. If several tanks are manifolded together, an isolation valve will have to be installed so as to separate the tanks individually.

2: There must be no delivery during waiting time.

3: This probe can only perform a 0.2 gph monthly test.

4: There must be no delivery or dispensing during testing.

5: System automatically determines minimum time based on test conditions being met. Test times will generally be longer for larger tanks.

**Tank Sentinel TS-750, TS-1000, TS-1001, and TS-2001 ATG's w/SCALD** (24-hour, 0.2 gph monthly monitoring)

- Critical performance parameters for the using the Tank Sentinel TS-750, TS-1000, TS-1001, and TS-2001 ATG's w/SCALD and TSP-LL2 series probes are:

<b>Parameter</b>	<b>Value</b>
Maximum Tank Size <sup>1</sup>	<b>Up to 49,336 gallons</b>
Maximum Number of Manifolder Tanks	<b>3</b>
Software Version	<b>N/A</b>
Minimum Tank Level <sup>2</sup>	<b>15%</b>
Maximum Monthly Throughput	<b>304,620 gallons</b>

1: For single or aggregate capacity of manifolded tanks.

2: The SCALD system will automatically check the tank level, and not perform a test if the tank level is below the minimum.

**Electronic Line Leak Detector**

- The INCON Electronic Line Leak Detector is approved for use on pipeline systems for underground storage tank facilities that contain petroleum or other chemical products. It is approved for use on rigid piping and flexible piping.
- An annual test of the operation of the leak detector shall be conducted in accordance with the manufacturer requirements for testing to the recognized leak thresholds by inducing a physical line leak. The individual performing the test must be qualified by the equipment manufacturer.
- The system may be used with trapped vapor present in the line.
- **Mechanical line leak detectors cannot be installed in the same line as the electronic line leak detector.**
- Critical performance parameters for the **Electronic Line Leak Detector:**

Parameter	Value
Total maximum allowable volume of product in any <b>flexible</b> test pipeline	<b>39.5 gallons or less</b>
Total maximum allowable volume of product in any <b>rigid</b> test pipeline	<b>163 gallons or less</b>

**Note:** All other critical parameters, such as test line pressure; minimum test times; minimum wait times between product dispensing and start of test are pre-programmed into the software and are not accessible for viewing.

**Liquid Level Sensors**

The Liquid Sensors shall be placed such that a release from any portion of the tank or piping will be detected.

Part Number	Description	Application
<b>TSP-EIS</b>	Electro-optic Liquid Sensor	Fiberglass or Steel Tank Dry Interstitial and Containment Sumps
<b>TSP-HLS</b>	Liquid Level Sensor	Tank Overfill
<b>TSP-HIS</b>	Dual Float Liquid Level	Brine Filled Interstitial of Double Wall Fiberglass Tank and Sump
<b>TSP-ULS</b>	Float liquid Sensor	Steel Tank Interstitial and Containment Sumps
<b>TSP-DIS</b>	Discriminating Liquid Sensor	Fiberglass or Steel Tank Dry Interstitial and Containment Sumps
<b>TSP-DTS</b> <b>TSP-DDS</b>	Float Technology Liquid Sensor w/Hydrocarbon Sensing Strip	Containment Sumps

This approval will be valid through December 31, 2007, 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.

Reviewed by: \_\_\_\_\_

Greg Bareta, P. E.  
Engineering Consultant  
Bureau of Petroleum Products and Tanks

Approved by: \_\_\_\_\_ Date: \_\_\_\_\_