



STATE OF WISCONSIN
Department of Agriculture,
Trade and Consumer Protection

Approval # 20190002
(Replaces 20150001)

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

Wisconsin ATCP 93 Material Approval

Equipment: Automatic Tank Gauging and Liquid
Monitoring Systems

Manufacturer: OMNTEC Manufacturing Inc.
1993 Pond Rd.
Ronkonkoma, NY 11779

Expiration of Approval: December 31, 2022

SCOPE OF EVALUATION

The OEL8000II Automatic Tank Gauging (ATG) System and Proteus Series OEL8000III Automatic Tank Gauging (ATG) Systems manufactured by OMNTEC Manufacturing Inc., were evaluated as a means of monthly monitoring and continuous statistical leak detection for underground tanks in accordance with **s. ATCP 93.515(5)**. The OMNTEC BX series non-discriminating liquid sensors (BX-LS, BX-LWF); the BX series discriminating liquid sensors (BX-PDS, BX-PDWS, BX-PDWF); the BX series brine level (BX-RES) and product level sensors (BX-L) were evaluated as a means of interstitial monitoring in accordance with **s. ATCP 93.515(7)**. The OMNTEC LU and LPD leak detection controllers and non-discriminating liquid sensors (LS-ASC, LWF); discriminating liquid sensors (PDS, PDWS, PDWF); brine level (L-R-1) and product level sensors were evaluated as a means of interstitial monitoring in accordance with **s. ATCP 93.515(7)**.

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 – ATCP 93.

DESCRIPTION AND USE

OEL8000II and Proteus OEL8000III

The OEL8000II and Proteus OEL8000III models consist of a console and keypad that can accommodate various types of probes and sensors. The Proteus System uses the same magnetostrictive probe as the OEL8000II series which senses the liquid level. Each probe has temperature sensors that are used to correct the calculated volume for temperature effects. A water sensor is used to detect water ingress.

The OEL8000II and Proteus OEL8000III consoles and probes may be used on tanks that contain gasoline, diesel, aviation fuel, #4 fuel oil, and other liquids with known coefficients of expansion and density with manufacturer's approval.

OEL8000II and Proteus OEL8000III w/CITLDS

When used for continuous statistical leak detection, the system determines when the tank is stable enough to begin data collection. Total data collection time can vary from a minimum of 3 hours up to 14 days. If the tank failed the 0.20 gph test for the month, or if the data was insufficient for performing the calculation, the system will alert the operator to manually run a four-hour static test before the end of the monthly reporting period.

Note: For all OEL8000II and Proteus OEL8000III models, if several tanks are manifolded together, an isolation valve has to be installed so as to separate the tanks individually during monthly testing.

Liquid Sensors

The OMNTEC Liquid Sensors are designed to detect fluids in the interstitial space of double-wall tanks or piping and in sumps. The BX series sensors are for use with the OEL8000II ATG and Proteus OEL8000III ATG controllers only. The LS, LS-ACS, LWF, PDS, PDWF, L-R-1, RES and L series sensors are for use with the LU and LPD stand-alone controller units only. All of the discriminating and non-discriminating sensors contain a pulsing light source and a photo-sensor that detects reflected light. A normally closed circuit (non-alarmed condition) exists in a dry condition because light is reflected back to the sensor through the use of a prism. The presence of a liquid will result in light being refracted away from the photo-sensor creating an open circuit (alarm condition). Discriminating sensors also contain a conductivity sensor to determine if the liquid is hydrocarbon or water.

Testing of all liquid sensors does not require removal from the normal detection location. When the test button is pushed on the controller, the normally closed light beam path is opened, which simulates an actual leak occurrence, sending an alarm signal to the controller. The controller responds to the alarm signal by turning on an audio/visual alarm and printing the test results, if equipped.

TESTS AND RESULTS

OEL8000II, OEL8000II w/CITLDS, Proteus OEL8000III, and Proteus OEL8000III w/CITLDS

Testing of all OEL8000II and Proteus OEL8000III models for monthly monitoring and tank tightness testing was conducted in accordance with the EPA Automatic Tank Gauging Systems protocol. When using a leak declaration threshold of 0.10 gph, the probabilities of detection of a leak of 0.20 gph, was certified to within the 95-5 ranges required by the EPA protocols.

Testing of the OEL8000II and Proteu OEL8000III systems w/CITLDS was conducted in accordance with a modified version of the EPA Automatic Tank Gauging Systems protocol. When using a leak declaration threshold of 0.10 gph, the probabilities of detection and false alarm of a leak of 0.20 gph were certified to within the 95-5 ranges required by the EPA protocols.

Liquid Sensors

Testing of the liquid sensors was conducted in accordance with the Alternative EPA Test procedures for Liquid Level Sensors 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.

```

QWTEC Mfg., Inc.
Tel: 1 (631) 981-2001
Fax: 1 (631) 981-2007

SITE INFORMATION:
Name: SMITH SITE
Addr: 123 MAIN ST
City, State, Zip:
HOMETOWN NY 12345
SITE MANAGER: Vern
PHONE: 5551234444
ID#: EL034444
VER. 4.23 ENG:040706D6
JUL 14, 2003 04:08 PM

---VLD LOG DATA

Tank 8, DIESEL
Start Time      GE 07/16/03 10:06:05
Elapsed Time    00:21:54
Start Temp.     76.65 Deg.
End Temp.       73.59 Deg.
Start Water:    0.000 (G)
End Water:      0.000 (G)
Start Level:    17.642 (In)
End Level:      17.642 (In)
Start Vol.      308.172 (G)
End Vol.        308.819 (G)

Delta (G)       -0.647 (G)
Rate:           -1.772 GPH
1 GPH Test, Thresh .05      FAILED
.2 GPH Test, Thresh .1      FAILED
  
```

```

---QWTEC PROBE
GE 07/16/03 10:20:06
Tank 1
Product Type:      Unleaded
Product Height:    22.48 (In)
Water:             0.46 (In)
Gross Volume:      485.08 (G)
T.C.:              485.54 (G)
Water:             5.08 (G)
Ullage:            542.92 (G)
TEMP.:            73.98 (F)

---QWTEC SENSOR
GE 07/16/03 10:20:55
S#: 1, P/N: EXLS, S/N: 00000052
Location:
DIESEL!

---QWTEC SENSOR
GE 07/16/03 10:42:38
S#: 9, P/N: EXPS, S/N: 200014507
Tank#: 1, Ullage Wall#: 7,
DIESEL!

---QWTEC SENSOR
GE 07/16/03 10:42:09
S#: 17, P/N: EXLRA, S/N: 310021903
Tank#: 1, Ullage High#: 3,
DIESEL!
  
```

VLD Log Data Report Example: Last tank test history report for all active tanks.

Sensor Status Report Example: Current condition of all interstitial and sump sensors

```

ID#: EL034444
VER. 4.23 ENG:040706D6
JUL 14, 2003 16:08 PM

---Testing FROM FROM
Tests OK

---Testing FROM          PASSED

---Check Slot
Slot 1      Ignition Board
Slot 2      Relay Board
Slot 3      Relay Board
Slot 6      Low Voltage Board

--Testing Line Leak EDs      TEST

---Testing Level Probes
TS# PRODUCT TYPE      TEST
T1 Unleaded            P
T2 Super Unleaded     P
T3 Regular            P
T4 Premium            P
T5 Kerosene           P
T6 Jet Fuel           P
T7 Gas                P
T8 DIESEL             P

---Testing Leak Sensors
S# P/N LABEL          TEST
01 EXLS                P
(S/N: 00000052)
02 EXLS T 2,Sump#: 12 P
(S/N: 000021412)
  
```

```

QWTEC Mfg., Inc.
Tel: 1 (631) 981-2001
Fax: 1 (631) 981-2007

SITE INFORMATION:
Name: SMITH SITE
Addr: 123 MAIN ST
City, State, Zip:
HOMETOWN NY 12345
SITE MANAGER: Vern
PHONE: 5551234444
ID#: EL034444
VER. 4.23 ENG:040706D6
JUL 14, 2003 16:08 PM

---CITLD REPORT 1.12
JUL, 2003 Results:
Tank 1, Unleaded
Start Time:      TH 07/17/03 00:21:27
End Time:        TH 07/17/03 02:25:58
Slope:           0.065 GPH
.2 GPH Test, Thresh .1      PASSED
+ Pass Height      51
                    4 5 51

Tank 2, Super Unleaded
Start Time:      GE 07/16/03 18:20:55
End Time:        GE 07/16/03 21:25:32
Slope:           0.015 GPH
.2 GPH Test, Thresh .1      PASSED
+ Pass Height      60
                    4 5 60
  
```

System Test Report Example: Check of sump, interstitial, consoles and probes. Will show alarm condition (A) if present.

CITLD Report Example: Current status of 24-hour leak detection (CITLD) for all active tanks.

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 **ATCP 93.500(9)**.
- 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 3rd 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.

OEL8000II and Proteus OEL8000III ATG's (0.2 gph static monitoring)

- Critical performance parameters for the OEL8000II and Proteus OEL8000III ATG's with the MTG series probe:

Parameter	Value																
Maximum Tank Size ¹	Up to 30,000 gallons																
Minimum Tank Level (0.2 gph testing only)	Minimum product level is based on tank diameter as follows: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Probe Working Length (Tank ID in inches)</th> <th>Minimum Level (in)</th> </tr> </thead> <tbody> <tr> <td>0 thru 48</td> <td>12</td> </tr> <tr> <td>49 thru 64</td> <td>15</td> </tr> <tr> <td>65 thru 72</td> <td>16</td> </tr> <tr> <td>73 thru 96</td> <td>20</td> </tr> <tr> <td>97 thru 126</td> <td>25</td> </tr> <tr> <td>127 thru 132</td> <td>26</td> </tr> <tr> <td>133 or greater</td> <td>contact OMNTEC</td> </tr> </tbody> </table>	Probe Working Length (Tank ID in inches)	Minimum Level (in)	0 thru 48	12	49 thru 64	15	65 thru 72	16	73 thru 96	20	97 thru 126	25	127 thru 132	26	133 or greater	contact OMNTEC
Probe Working Length (Tank ID in inches)	Minimum Level (in)																
0 thru 48	12																
49 thru 64	15																
65 thru 72	16																
73 thru 96	20																
97 thru 126	25																
127 thru 132	26																
133 or greater	contact OMNTEC																
Waiting time between filling tank and test start (Stabilization Time)	4 hours minimum																
Minimum Test Period ²	4.5 hours																

- 1: Monthly testing can only be performed on one tank at a time. If several tanks are manifolded together, a solenoid valve will have to be installed so as to separate the tanks individually during monthly testing.
- 2: There must be no dispensing or delivery during testing.

OEL8000II and Proteus OEL8000III w/CITLDS (24-hour, 0.2 gph monthly monitoring)

Note: If the tank fails the 0.20 gph CITLDS test for the monthly period, or if the data was insufficient for performing the calculation, the operator must, before the end of the 30th day, manually run the static test above.

In addition, if the data was insufficient (inconclusive) for performing the calculation for 2 consecutive months, the operator shall, before the end of the second month, perform a tightness test in accordance with ATCP 93.515(4).

- Critical performance parameters for the OEL8000II w/CITLDS using the MTG series probes are:

Parameter	Value
Maximum Tank Size ¹	Up to 18,000 gallons
Minimum Tank Level	12.7%
Maximum Monthly Throughput	154,195 gallons

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

Liquid Level Sensors

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

Sensors for use with the OEL8000II and Proteus OEL8000III controllers:

Part Number	Description	Application
BX-PDS	Discriminating Sump Sensor	Piping/Dispenser Sump Tank Interstitial
BX-PDWS	Discriminating Sensor for Double-Wall Tanks	Steel and Xerxes 4' Dia. Fiberglass Tank Interstitial
BX-PDWF	Discriminating Sensor for Dry Double-Wall Tanks	Fiberglass Tank Interstitial
BX-LS	Non-Discriminating Sensor for Double-Wall Tanks and Sumps	Piping/Dispenser Sump Steel and Xerxes 4' Dia. Fiberglass Tank Interstitial
BX-LWF	Non-Discriminating Sensor for Dry Double-Wall Tanks	Fiberglass Tank Interstitial
BX-RES	Sensor for Brine-Filled Double-Wall Tanks	Fiberglass Tank Hydrostatic Reservoir
BX-L-SERIES	Non-Discriminating Liquid Level Sensor	Piping/Dispenser Sump

Sensors for use with the LU and LPD controllers:

Part Number	Controller	Description	Application
LS-ASC, LS	LU	Non-Discriminating Sensor for Double-Wall Tanks and Sumps	Piping/Dispenser Sump Steel Tank Interstitial
LWF	LU	Non-Discriminating Sensor for Dry Double-Wall Tanks	Fiberglass Tank Interstitial
L-1-L,S,D	LU OR LPD	Non-Discriminating Liquid Level Sensor	Piping/Dispenser Sump
PDWF	LPD	Discriminating Sensor for Dry Double-Wall Tanks	Fiberglass Tank Interstitial
PDWS	LPD	Discriminating Sensor for Double-Wall Tanks	Steel Tank Interstitial
PDS	LPD	Discriminating Sump Sensor	Piping/Dispenser Sump Tank Interstitial
L-R-1, RES	LPD	Sensor for Brine-Filled Double-Wall Tanks	Fiberglass Tank Hydrostatic Reservoir

This approval will be valid through December 31, 2022, 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: February 4, 2019

Reviewed by: Signature on File Date: 2/4/2019

Erik Otterson
Environmental Engineering Specialist
Bureau of Weights and Measures

Approved by: Signature on File Date: 2/4/2019

Greg Bareta, P. E.
Section Chief
Storage Tank Regulation
Bureau of Weights and Measures