

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10

Reply To
Attn Of: WD-133

1200 Sixth Avenue
Seattle, Washington 98101

February 11, 1994

RE: SEVENTH EDITION OF LEAK DETECTION METHODS

Dear Interested Party:

The U.S. Environmental Protection Agency (EPA), Region 10, Underground Storage Tank (UST) program, acting at the request of EPA Headquarters and the other EPA Regions, has compiled the following list of leak detection methods that appear to have met or exceeded the accuracy requirements stated in the federal UST regulations (40 CFR 280). Manufacturers listed have provided this office with certifications that their product(s) meet performance standards described in the Standard Test Procedures for Evaluating Leak Detection Methods (EPA/530/UST-90/xxx).

The list is divided into seven sections based on method: Volumetric Tank Tightness Testing, Nonvolumetric Tank Tightness Testing, Automatic Tank Gauging Systems, Statistical Inventory Reconciliation Method, Vapor-phase Out-of-tank Product Detectors, Liquid-phase Out-of-tank Product Detectors, Pipeline Leak Detection Systems, and Other Methods (Those for which no established EPA Procedures are available.).

Each section includes 1) the manufacturer's name, address and phone; 2) the product name and model; 3) accuracy and applicable comments on the product as stated by the evaluating party, including probability of false alarm (Pfa), probability of detection (Pd), and operational limitations and requirements such as tank size and product level; and 4) the name of the evaluator and evaluation date.

The changes from the SIXTH EDITION are highlighted in gray. EPA has not evaluated these certifications, and inclusion on this list in no way states or implies that EPA approves or certifies any of these products. Users are also advised to contact their state UST program because several states maintain a more restrictive list of leak detection methodologies.

Contact Harold Scott at (206) 553-1587 for any additions, corrections, or comments.

Sincerely,

Joan Cabreza, Chief
Underground Storage Tank Section

SEVENTH EDITION

LEAK DETECTION LIST OF METHODOLOGIES USED

FOR

UNDERGROUND STORAGE TANKS

U.S. Environmental Protection Agency, Region 10

February 11, 1994

TABLE OF CONTENTS

	PAGE
Disclaimer Notification.....	ii
Volumetric Tank Tightness Methods.....	1
Nonvolumetric Tank Tightness Methods.....	8
Automatic Tank Gauging Systems.....	10
Statistical Inventory Reconciliation Methods.....	16
Vapor-phase Out-of-tank Product Detectors.....	18
Liquid-phase Out-of-tank Product Detectors.....	20
Pipeline Leak Detection Systems.....	23
Other Methods.....	28

DISCLAIMER

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VOLUMETRIC TANK TIGHTNESS TESTING METHOD (EPA/530/UST-90/004)

<u>Manufacturer</u>	<u>Test Method Name/Model</u>	<u>Accuracy/Comments</u>	<u>Evaluator/Date</u>
Advanced Tank Certification, Inc. 211 Center Park Dr. Knoxville, TN 37922 (800) 365-8378	MOD IIB	Pfa=<1% @ 0.05 gph Pd=>99% @ 0.10 gph Tanks 0-100% full Tanks to 15,000 gal	Law Engineering 12/15/90
Gillbarco 7300 W. Friendly Avenue P.O. Box 22087 Greensboro, NC 27420 (919) 547-5000	Alert 1000	Pfa=4.5% @ 0.05 gph Pd=>95.5% @ 0.10 gph Tanks >60% full Tanks to 30,000 gal	MRI 3/17/92
	Alert 4000	Pfa=3.7% @ 0.05 gph Pd=96.3% @ 0.10 gph Tanks 20-95% full Tanks to 15,000 gal	Ken Wilcox Associates 5/20/92
Andover Controls Corporation 300 Brickstone Square Andover, MA 01910 (508) 470-0555	AC8+ and 256+	Pfa=3.5% @ 0.05 gph Pd=96.5% @ 0.10 gph Tanks 50%-90% full Tanks to 15,000 gal	Ken Wilcox Associates 2/3/92
	Andover Infinity Model CX9000, CX9200, and CXH240	Pfa=2.4% @ 0.05 gph Pd=97.6% @ 0.10 gph Tanks at least 50% full Tanks to 15,000 gal	Ken Wilcox Associates 5/24/93
Associated Environmental Systems 3651 Pegasus Dr. Suite 102 Bakersfield, CA 93308 (805) 393-2212	AES System II (Version 1-overfill)	Pfa=1.1% @ 0.05 gph Pd=98.9% @ 0.10 gph Overfill required Tanks to 75,000 gal	Ken Wilcox Associates 2/28/92
	AES System II (Version 2-underfill)	Pfa=3% @ 0.05 gph Pd=99% @ 0.10 gph Tank > 50% full Tanks to 30,00 gal	Vista Research 7/8/91

Control Engineers, Inc.
107 Menard Road
Houma, LA 70361
(504) 872-4541

CEI 3000 Tank Models TLP2
(Rapid and Normal Test Mode)

Pfa=5% @ 0.05 gph
Pd=95% @ 0.1 gph
Pfa=0.08% @ 0.05 gph
Pd=99.2% @ 0.1 gph
Tanks at least 95% full
Tanks to 15,000 gal

MRI
6/26/92

BBW
2814 McCracken Ave.
Muskegon, MI 49443
(800) 478-5151

Auto-Stik II and
Auto-Stik Jr.

Pfa=1.7% @ 0.05 gph
Pd=98.3% @ 0.10 gph
Tank at least 50% full
Tanks to 15,000 gal

Ken Wilcox Associates
8/20/93

EMCO Wheaton
114 MacKenan Dr.
Cary, NC 27511
(800) 342-6125

EECO system Model Q2001

Pfa=5% @ 0.05 gph
Pd=95% @ 0.10 gph
Tanks >95% full
Tanks to 15,000 gal

MRI
9/25/91

Gilbarco
7300 W. Friendly Ave.
P.O. Box 22087
Greensboro, NC 27420
(919) 547-5000

TM-2/TM-3/EMC*
PA 0264XXX0000 Probe

Pfa=<0.10% @ 0.071 gph
Pd=99% @ 0.10 gph
Tank >95% full
Tanks to 15,000 gal

MRI
8/28/91

TM-2/TM-3/EMC*
PA 0265XXX0000 Probe

Pfa=1.0% @ 0.069 gph
Pd=99% @ 0.10 gph
Tank >95% full
Tanks to 15,000 gal

MRI
8/28/91

Gilbarco Precision
Test System

Pfa=0.04% @ 0.05 gph
Pd=>99.9% @ 0.10 gph
Tank >95% full
Tanks to 12,500 gal

MRI
1/16/91

Hasstech, Inc.
5360-E Eastgate Mall
San Diego, CA 92121
(619)457-5880

Leak Computer

Pfa=5% @ 0.05 gph
Pd=95% @ 0.10 gph
Overfill required
Tanks to 12,000 gal
Manufacturer claims 20,000 gal
limit based on statistical
interpretation of test data
and results

Risk Reduction
Engineering Lab
9/12/90

Heath Consultants Inc.
9030 Monroe Road
Houston, TX 77061

Quick Check 2000

Pfa=<1% @ 0.05 gph
Pd=>99% @ 0.10 gph
Tanks 0-100% full
Tanks to 15,000 gal

Law Engineering
4/17/91

Petro Tite II

Pfa=3.1% @ 0.05 gph
Pd=96.9% @ 0.10 gph
Overfill required
Tanks to 10,000 gal

MRI
3/22/90

Petro Comp

Pfa=4.8% @ 0.07 gph
Pd=95.2% @ 0.10 gph
Overfill required
Tanks to 30,000 gal

Ken Wilcox Associates
1/11/93

Horner Ezy Chek I
(manual)

Pfa=0.98% @ 0.05 gph
Pd=99+% @ 0.10 gph
Overfill required
Tanks to 15,000 gal

Ken Wilcox Associates
12/15/91

Horner Creative Products
212 Morton Street
Bay City, MI 48706
(800) 443-0711

Horner Ezy Chek II
(volumetric)

Pfa=1% @ 0.05 gph
Pd=99% @ 0.10 gph
Overfill required
Tanks to 12,000 gal

W. A. Kibbe &
Associates
10/3/90

Pfa=0.05% @ 0.05 gph
Pd=99.95% @ 0.10 gph
Overfill required
Tanks to 12,000 gal

W. A. Kibbe &
Associates
9/18/90

Pfa=4.21% @ 0.05 gph
Pd=95.79% @ 0.10 gph
Underfill @ 98% full
Tanks to 12,000 gal

W. A. Kibbe &
Associates
6/25/90

Ibex Industries
Center
2014 S. Union Avenue, Suite 103
Bakersfield, CA 93307
(805) 835-8910

Incon Environmental
P.O. Box 638
Saco, ME 04072
(800) 872-3455

Keekor Environmental Products
14806 North 74th St.
Scottsdale, AZ 85260
(602) 443-0001

Leak Detection Systems, Inc.
152 King Street
Cohasset, MA 02025
(617) 383-2305

Marley Pump Company
5800 Foxridge Drive
Mission, KS 66202

NDE Environmental Corporation
2902 Oregon Court, Suite B1
Torrance, CA 90503
(213) 542-4342

Ibex Precision Test System

TS 2000

TS 1000

FBO-800/801 Fuel Inventory
and Environmental Monitor

Tank Auditor
RTD V.2.16

Sonic Technology (ST)
1400-1800 Series Tank
Monitoring System

Computerized VPLT Tank Leak
System, Model A

Pfa=0.5% @ 0.05 gph

Pd=99.5% @ 0.10 gph
Tank must be >90% full
Tanks to 18,000 gal

Pfa=0.05% @ 0.058 gph
Pd=99.5% @ 0.10 gph
Tank must be >50% full
Tanks to 15,000 gal

Pfa=0.8% at 0.05 gph
Pd=99.2% at 0.10 gph
Tank must be >50% full
Tanks to 15,000 gal

Pfa=5.0% @ 0.1 gph
Pd=95.0% @ 0.1 gph
Tanks 90-95% full
Tanks to 15,465 gal

Pfa=0.02 @ 0.05 gph
Pd=99.98% @ 0.10 gph
Overfill required
Tanks to 15,000 gal
A statistical evaluation of
this method by Ken Wilcox & Assoc.
have shown this method can meet
the Pfa<5% and Pd>95% for tanks to
50,000 gal.

Pfa=3.1% @ 0.05gph
Pd=96.9% @ 0.1gph
Tanks must be >25% full
Tanks to 18,000 gal

Pfa=5% @ 0.05 gph
Pd=99% @ 0.10 gph
Overfill required
Tanks to 75,000 gal

Applied Research

12/12/90

Ken Wilcox Associates
5/10/91

Ken Wilcox Associates
8/5/92

Keekor Env. Products
11/5/91

Ken Wilcox Associates
12/11/90

ADA Technologies, Inc.
10/12/92

Vista Research
3/4/91

O/C Tanks Corporation
Fiberglass Tower
Toledo, OH 43699
(419) 248-5475

OTEC Inc. (formerly ARCO HTC)
United Detection Systems Inc.
3466 Hwy 41
De Pere, WI 54155
(800) 448-1278

Pneumercator Company
120 Finn Court
Farmingdale, NY 11735
(516) 293-8450

ProEco
7439 E. Hillsborough Ave.
Tampa, FL 33610
(800) 981-9421

Purpora Engineering, Inc.
2016 W. Bender Road
Glendale, WI 53209
(414) 228-7631

Red Jacket Electronics
5800 Foxridge Drive
Mission, KS 66202
(913) 831-5700

* O/C Tanks Hydrostatic
Tank Test for DW Tanks

HTC (2nd and 3rd Generation)

Pneumercator Precision
Precision Tank Leak Detector

Sure Test

Purpora 706 Process

RLM 5000, RLM 5001
and RLM 9000

Pfa=0.3% @ 0.05 gph
Pd=99.7% @ 0.10 gph
Underfill method
Tanks to 12,000 gal

Pfa=1.3% @ 0.05 gph
Pd=99.9% @ 0.10 gph
Tanks 0-100% full
Tanks to 30,000 gal

Pfa=0.5% @ 0.05 gph
Pd=99.4% @ 0.10 gph
Tank > 60% full
Tanks to 15,000 gal

Pfa=0.005% @ 0.05 gph
Pd=97.2% @ 0.05 gph
Tank must be >50% full
Tanks to 18,000 gal

Pfa=1.8% @ 0.05 gph
Pd=99.9% @ 0.10 gph
Overfill required
Tanks to 15,000 gal

Pfa=0.5% @ 0.05 gph
Pd=99.5% @ 0.10 gph
Tank must be >50% full
Tanks to 15,000 gal

Vista Research
11/7/90

Vista Research
5/15/91

Ken Wilcox Associates
1/23/91

Ken Wilcox Associates
9/26/91

ADA Technologies
8/19/91

Ken Wilcox Associates
6/11/91

Ken Wilcox Associates
6/11/91

Integrated Product Systems, Inc. Texas 506 Sandau Road, Suite 200 San Antonio, TX 78216 (210) 525-1333	ATG Automatic Tank Gauging System Remote Tank Management System RTM-I	Pfa=<0.01% @ 0.05 gph Pd=>99.99999% @ 0.10 gph Tanks to 15,000 gal Tanks 15" to 95% full Pfa=1% @ 0.10 gph Pd=99.5% @ 0.10 gph Threshold leak detection @ 0.05 gph System detects tank and and line leaks	Campbell Scientific, Inc. 12/1/90 The University of at San Antonio 3/21/91
Ronan Engineering 21200 Oxnard St. Woodland Hills, CA 91367 (818) 883-5211	X-76 ETM Electronic Tank Monitor System	Pfa=4.66% @ 0.05 gph Pd=95.34% @ 0.10 gph Tanks to 15,00 gal Tanks must be >10% full	Ken Wilcox Associates 11/21/91
Schuster Instruments, Inc. 211 Grover St. Kawkawlin, MI 48631 (517) 684-6638	Tel-a-Leak I	Pfa=0.14% @ 0.05 gph Pd=99.86% @ 0.10 gph Overfill required Tanks to 15,250 gal	W. A. Kibbe & Associates 11/26/90
Soil Test 86 Albrecht Drive Lake Bluff, IL 60044 (800) 323-1242	Ainlay Tank 'Tegrity Tester S-3	Pfa=1% @ 0.05 gph Pd=99% @ 0.10 gph *Tank must be 100% full Tanks to 15,000 gal	Law Engineering 11/28/90
Tank Automation, Inc. 701 Brazos, Suite 500 Austin, TX 78701 (512) 320-9092	APTT System R-2	Pfa=1% @ 0.05 gph Pd=99% @ 0.10 gph Overfill required Tanks to 15,000 gal	Wildwood Engineering 11/14/90
Triangle Manufacturing 172 West Verdugo Avenue Burbank, CA 91502-2132 (818) 840-7020	T.E.I. System 4000	Pfa=4.8% @ 0.05 gph Pd=99.0% @ 0.10 gph Tank must be >50% full Tanks to 15,000 gal	United States Testing, Inc. 4/2/91

USTest
P.O. Box 53835
Lafayette, LA 70505
(318) 981-9421

UST 2000/P

Pfa <1% @ 0.05 gph
Pd >99% @ 0.10 gph
Tank must be >95% full
Tanks to 45,000 gal

Ken Wilcox Associates
7/6/92

Veeder-Root
125 Powder Forest Drive
Simsbury, CT 06070-2003
(203) 651-2700

TLS-250, TLS-2501, TLS-350
8472 Digital Sensing Probe
(Capacitance)

Pfa <0.1% @ 0.071 gph
Pd=99% @ 0.10 gph
Tank must be >50% full
Tanks to 15,000 gal

MRI
4/25/91

TLS-250, TLS-2501, TLS-350
8473 Digital Sensing Probe
(Magnetostrictive)

Pfa=1.0% @ 0.069 gph
Pd=99% @ 0.10 gph
Tank must be >50% full
Tanks to 15,000 gal

MRI
4/26/91

William M. Wilson's Sons, Inc.
P.O. Box 309
Lansdale, PA 19446
(215) 855-4631

Gasboy ATGS-Leak Detection
Model TMS 500

Pfa=1.8% @ 0.05 gph
Pd=98.2% @ 0.10 gph
Tank must be >50% full
Tanks to 15,000 gal

Ken Wilcox Associates
5/10/91

Xerxes Corporation
7901 Xerxes Ave. South
Minneapolis, MN 55431
(612) 887-1890

* Truchek / DWT II

Pfa=2.5% @ 0.05 gph
Pd=97.5% @ 0.10 gph
Tanks 0-100% full
Tanks to 18,000 gal

R. Plunket
6/7/91

* these methods test the annular section of the manufacturer's double-wall tanks.

NONVOLUMETRIC TANK TIGHTNESS TESTING METHOD (EPA/530/UST-90/005)

<u>Manufacturer</u>	<u>Test Method Name/Model</u>	<u>Comments</u>	<u>Evaluator/Date</u>
Gilbarco 7300 W. Friendly Ave. P.O. Box 22087 Greensboro, NC 27420 (919) 547-5000	Alert 1050 Ullage System	This is a ullage ($<8,000$ gal) test This is a sonic test Tanks to 15,000 gal	Ken Wilcox Associates 3/15/92
Horner Creative Products 212 Morton Street Bay City, MI 48706 (517) 893-3360	Horner Ezy 3	Negative pressure test Tanks to 50,000 gal with tank 70-90% full	William A. Kibbe Associates 4/6/92
Lab One Analytical, Inc. 12329 E. 60th Street Tulsa, OK 74146	Search 1.00 Tracer	Tanks 0-100% full.	University of Tulsa 11/2/92
NDE Environmental Corp. 2000 Mariner Ave. Suite 500 Torrance, CA 90503 (213) 542-4342	NDE Ullage Precision Tank Test	This is a Ullage test Tanks to 12,000 gal	MRI 7/11/91
	UTS-4T U-1 U-2	Ullage test to 7,500 gal Ullage test to 4,500 gal Ullage test to 10,260 gal	MRI 7/11/91 ADA Technologies 3/25/92 4/10/92
NLPA P.O. Box 1643 Boise, Idaho 83701 (208) 389-2074	NLPA PHD 3-15	Applicable to internally lined tanks and uses an audible alarm.	Ken Wilcox Associates 1/17/92

Triangle Environmental, Inc.
72 West Verdugo Avenue
Burbank, CA 91502-2132
(818) 840-7020

Tanknology Corporation Int.

5225 Hollister Street
Houston, TX 77040
(713) 690-8265

Tracer Research Corporation
3855 North Business Center Dr.
Tucson, AZ 85705
(602) 888-9400

USTEST, Inc.
2727 Kaliste Saloom Road
Lafayette, LA 70508

TEI System 5000

VacuTect

Tracer Tight

Tracer Tight
Ullage Test

UST 2000U

This is a sonic test
Tanks to 20,000 gal

Tanks to 75,000 gal
with tank 60-90% full

Tanks to 30,000
with tank 5-95% full

Tanks 0-100% full

This is a Ullage Test
No tank size limitation

This is a sonic test
Tanks to 10,000 gal

United State Testing
2/4/93

Ken Wilcox Associates
5/10/91

Ken Wilcox Associates
10/4/91

Control Strategies
Engineering
12/30/91

Ken Wilcox Associates
3/24/92

AUTOMATIC TANK GAUGING SYSTEMS (ATGS) (EPA/530/UST-90/006)

<u>Manufacturer</u>	<u>Test Method Name/Model</u>	<u>Accuracy/Comments</u>	<u>Evaluator/Date</u>
Alert Technologies, Inc. 3350 West Salt Creek Lane Suite 109 Arlington Hts., IL 60005 (708) 392-0060	Alert Model 2000	Pfa=4.6% @ 0.10 gph Pd=95.4% @ 0.20 gph Tanks to 15,000 gal Data collection for above performance at least 1 hr.	MRI 3/11/91
	Alert Model 3000	Pfa=3.6% @ 0.05 gph Pd= 96.4% @ 0.10 gph Tanks 20-95% full Tanks to 15,000 gal	Ken Wilcox Associates 2/29/92
Andover Controls Corporation 300 Brickstone Square Andover, MA 01910 (508) 470-0555	Andover Controls Tank System	Pfa=<0.5% @ 0.10 gph Pd=>99.5% @ 0.20 gph Tanks must be >50% full Tanks to 15,000 gal	Ken Wilcox Associates 2/3/92
Andover Controls Corporation 300 Brickstone Square Andover, MA 01910 (508) 470-0555	Andover Infinity Models CX9000, CX9200, and CMX240	Pfa=<0.1% @ 0.10 gph Pd=>99.9% @ 0.20 gph Tanks must be > 50% full Tanks to 15,000 gal	Ken Wilcox Associates 5/24/93
Control Engineers, Inc. 107 Menard Road Houma, LA 70361 (504) 872-4541	CEI 3,000 Module TLP2 (Rapid and Normal Test Mode)	Pfa=5% @ 0.05 gph Pd=95% @ 0.1 gph Pfa=0.9% @ 0.05 gph Pd=99.1% @ 0.1 gph Pfa=5% @ 0.1 gph Pd=9.5% @ 0.2 gph Pfa=0.1% @ 0.1 gph Pd=99.9% @ 0.2 gph Tanks at least 50% full Tanks to 15,000 gal	MRI 4/23/92 5/21/92 5/27/92
EBW, Inc. 2814 McCracken Avenue Muskegon, MI 49441 (600) 475-5151	Auto-Stik II and Auto-Stik Jr	Pfa=<0.1% @ 0.1 gph Pd=99.9% @ 0.20 gph Tanks at least 50% full Tanks to 15,000 gal	Ken Wilcox Associates 8/20/93

egemin Naamloze Vennotschap
2120 Schoten(B)
Bredabaan 1202, Belgium
32/3/645-2790

E'SPI III

Pfa=1.1% @ 0.075 gph
Pd=97.9% @ 0.20 gph
Tanks to 15,000 gal
Requires at least 20"
of product to function
Data collection for above
performance at least 5.4 hrs.

MRI
12/21/90

E'SPI IV

Pfa=0.3% @ 0.10 gph
Pd=97.2% @ 0.20 gph
Tanks to 15,000 gal
Requires at least 20"
of product to function
Data collection for above
performance at least 2.15 hrs.

MRI
12/21/90

Emco Wheaton
114 MacKenan Dr.
Cary, NC 27511
(919) 460-6000

EECOsystem-TLM

Pfa=0.9% @ 0.10 gph
Pd=99.1% @ 0.20 gph
Tanks must be >50% full
Tanks to 15,000 gal
Data collection for above
performance at least 3.25 hrs.

MRI
3/25/91

Engineered Systems Inc.
2001 West Campus Drive
Tempe, AZ 85282
(602) 438-1362

Tank Minder ATGS1

Pfa=2.9% @ 0.10 gph
Pd=97.1% @ 0.20 gph
Tanks must be >90% full
Tanks to 15,000 gal
Data collection for above
performance at least 6 hrs.

Ken Wilcox Associates
6/4/91

Environment and Safety, Inc.
721 Charcot Ave.
San Jose, CA 95131
(408) 954-9081

EASI Level-Tru

Pfa=4.6% @ 0.1 gph
Pd=95.4% @ 0.2 gph
Tanks must be >50% full
Tanks to 15,000 gal
Data collection for above
performance at least 3.6 hrs.

MRI
3/26/91

Gilbarco
7300 W. Friendly Ave.
P.O. Box 22087
Greensboro, NC 27420
(919) 547-5000

TM-2/TM-3/EMC*
PA 0238000XXX Probe

Pfa=1% @ 0.10 gph
Pd=99% @ 0.20 gph
Tanks must be >50% full
Tanks to 15,000 gal
Data collection for above
performance at least 5 hrs.

MRI
8/28/91

TM-2/TM-3/EMC*
PA 0264XXX0000 Probe

Pfa=0.2% @ 0.126
Pd=99% @ 0.20 gph
Tanks must be >50% full
Tanks to 15,000 gal
Data collection for above
performance at least 2 hrs.

MRI
8/28/91

TM-2/TM-3/EMC*
PA 0265XXX0000 Probe

Pfa=<0.1 @ 0.093 gph
Pd=99% @ 0.20 gph
Tanks must be >50% full
Tanks to 15,000 gal
Data collection for above
performance at least 2 hrs.

MRI
8/28/91

Incon Environmental
P.O. Box 638
Saco, ME 04072
(800) 872-3455

TS 2000

Pfa=0.5% @ 0.058 gph
Pd=>99.9% @ 0.2 gph
Tanks must be >50% full
Tanks to 15,000 gal
Data collection for above
performance at least 3 hrs.

Ken Wilcox Associates
5/10/91

TS 1000

Pfa=0.8% @ 0.05 gph
Pd=99.99% @ 0.02 gph
Tank must be > 50% full
Tanks to 15,000 gal

Ken Wilcox Associates
8/5/92

L&J Environmental Systems
4612 W. 137th St.
Crestwood, IL 60445
(708) 396-1878

MCG 1100 and MCG 8100

Pfa=1.4% @ 0.10 gph
Pd=98.6% @ 0.20 gph
Tanks 50-95% full
Tanks to 15,000 gal
Data collection for above
performance at least 4 hrs.

Ken Wilcox Associates
10/15/91

Keekor Environmental Products
Scottsdale Airpark
14806 North 74th St.
Scottsdale, AZ 85260
(602) 443-0001

MagneTek
1080 N. Crooks Road
Clawson, MI 48017
(313) 435-0700

Marley Pump Company
5800 Foxridge Drive
Mission, KS 66202

PetroVend, Inc.
6900 Santa Fe Dr.
Hodgkins, IL 60525-9909
(708) 485-4200

Red Jacket Electronics
5800 Foxridge Drive
Mission, KS 66202
(913) 831-5700

FBO-800/801 Fuel Inventory
and Environmental Monitor

7021 Digital
Tank Gauge

Sonic Technology (ST)
1400-1800 Series Tank
Monitoring System

Petrosonic III

Site Sentinel
101A

RLM 9000, RLM 5000
and RLM 5001

Pfa=2.4% @ 0.1 gph
Pd=97.6% @ 0.2 gph
Tanks to 15,500 gal
Data collection for above
performance at least 24 hrs.
(Not tested for measuring
water in tanks)

Pfa=4.66% @ 0.05 gph
Pd=95.34% @ 0.10 gph
Pfa=0.044% @ 0.20 gph
Pd=99.96% @ 0.20 gph
Tanks must be > 10% full
Tanks to 15,000 gal
Data collection for above
performance at least 4 hrs.

Pfa=0.05% @ 0.1gph
Pd=99.95% @ 0.2gph
Tanks must be > 25% full
Tanks to be 18,000 gal

Pfa=0.5% @ 0.1 gph
Pd=99.5% @ 0.2 gph
Tanks must be >58% full
Tanks to 14,600 gal
Data collection for above
performance at least 4 hrs.

pfa=1.7% @ 0.1 gph
pd=98.3% @ 0.2 gph
Tanks must be at
least 59% full
Tanks to 15,000 gal

Pfa=0.5% @ 0.058 gph
Pd=>99.9% @ 0.20 gph
Tanks must be >50% full
Tanks to 15,000 gal
Data collection for above
performance at least 3 hrs.

Arizona State
University
10/5/92

Ken Wilcox Associates
2/7/91

ADA Technologies, Inc.
10/12/92

Underwriters
Laboratories
2/27/91

Underwriters
Laboratories
1/25/92

Ken Wilcox Associates
6/11/91

Integrated Product Systems, Inc. Texas 506 Sandau Road, Suite 200 San Antonio, TX 78216 (210) 525-1333	ATG Automatic Tank Gauging System	Pfa=0.00001% @ 0.1 gph Pd=99.99999% @ 0.20 gph Tanks must be 50% - 90% full Tanks to 18,000 gal	ADA Technologies 11/19/90
	Remote Tank Management System RTM-I	Pfa=1% @ 0.20 gph Pd=99.9% @ 0.20 gph Tanks to 18,000 gal System detects tank and line leaks.	The University of at San Antonio 3/21/91
Ronan Engineering Co. 21200 Oxnard St. Woodland Hills, CA 91367 (818) 883-5211	Ronan X-76 ETM Electronic Tank Monitor	Pfa=0.044% @ 0.10 gph Pd=99.96% @ 0.20 gph Tanks to 15,000 gal Tanks >10% full	Ken Wilcox Associates 2/7/91
Tidel Engineering, Inc. 2615 E. Beltline Rd. Carrollton, TX 75006 (214) 416-8222	EMS-2000 & EMS-3000	Pfa=3.00% @ 0.05 gph Pd=96.20% @ 0.20 gph Tanks to 15,000 gal Tanks >50% full	Ken Wilcox Associates 2/14/91
Veeder-Root 125 Powder Forest Drive Simsbury, CT 06070-2003 (203) 651-2700	TLS-250/TLS-250i and TLS-350 with 8473 Probe (Magnetostrictive)	Pfa<0.1% @ 0.093 gph Pd=99% @ 0.20 gph Pfa<0.1% @ 0.071 gph Pd=99% @ 0.10 gph Tanks must be >50% full Tanks to 15,000 gal Data collection for above performance at least 2 hrs.	MRI 1/18/91 MRI 4/26/91
	TLS-250/TLS-250i and TLS-350 8472 Probe (Capacitance)	Pfa=0.2% @ 0.126 gph Pd=99% @ 0.20 gph Pfa=1.0% @ 0.069 gph Pd=99% @ 0.10 gph Tanks must be >50% full Tanks to 15,000 gal Data collection for above performance at least 2 hrs.	MRI 1/18/91 MRI 4/25/91
	TLS-250/TLS-250i and TLS-350 7842 Probe (Capacitance)	Pfa=1% @ 0.10 gph Pd=99% @ 0.20 gph Tanks must be >50% full Tanks to 15,000 gal Data collection for above performance at least 5 hrs.	MRI 1/18/91

William M. Wilson's Sons, Inc.
P.O. Box 309
Lansdale, PA 19446
(215) 855-4631

Gasboy TMS 500

Pfa=0.09% @ 0.10 gph
Pd=99.91% @ 0.20 gph
Tanks must be >50% full
Tanks to 15,000 gal
Data collection for above
performance at least 2.9 hrs.

Ken Wilcox Associates
5/10/91

STATISTICAL INVENTORY RECONCILIATION METHOD (EPA/530/UST-90/0071)

<u>Manufacturer</u>	<u>Test Method Name/Model</u>	<u>Accuracy/Comments</u>	<u>Evaluator/Date</u>
Computerizing, Inc. P.O. Box 99 Scottsboro, AL 35768	Computank 3.0	Pd=99.5% @ 0.2 gph Pfa=2% Tanks to 18,000 gal	Ken Wilcox Associates 9/17/92
Entropy Limited South Great Road Lincoln, MA 01773 (617) 259-8901	PTIC Rev. 90	Pd=99.5% @ 0.10 gph Tanks to 60,000 gal (includes manifolded)	Simpson Gunter, Inc. Heger, Inc. 11/30/93
EnviroQuest Technologies Limited 4501 Madison Avenue Kansas City, MO 64111 (816) 756-0774	SIRAS 99.6	Pd=99.6% @ 0.1 gph Pfa=0.4% Tanks to 18,000 gal	MRI 4/23/92
	SIRAS 2.0	Pd=99.3% @ 0.1 gph Pfa=0.7% Tanks (includes manifolded) to 60,000 gal	MRI 8/23/93
	SIRAS 2.8.3	Pd=99.99% @ 0.2 gph Pfa=0.01% Tanks (includes Manifolded) to 60,000 gal.	MRI 8/23/93
Horner Creative Products, Inc. 212 Morton Street Bay City, Michigan 48706 (800) 443-0711	SIR PRO 1 (J & J Technologies)	Pd=100% @ 0.20 gph Pfa = 0% Tanks to 18,000 gal	Petroworks 4/7/93

Simmons SIR-VEY Group
9550 Forest Lane #720
Dallas, TX 75243
(800) 848-8378

SIR 2.6

Pd=98% @ 0.10 gph
Pfa=2%
Tanks to 18,000

Ken Wilcox Associates
1/27/92

SIR 5.7

Pd=99% @ 0.1 gph
Pfa=1%
Tanks to 18,000 gal

SSG Associates
12/15/92

SIR Monitor, Inc.
P.O. Box 2791
Nashville, TN 37133
(615) 895-2872

SIR Monitor

Pd=99.9% @ 0.1 gph
Pfa=1%
Tanks to 18,000

Middle Tennessee State
University
11/5/92

Southeastern Liquid Analyzers, Inc.
P.O. Box 754
300 W. Liberty Street
York, S.C. 29745
(800) 888-7352

Tank Chek 4.0

Pd=100% @ 0.1 gph
Pfa=0%
Tanks to 18,000 gal

Petroworks
6/3/93

USTMAN Industries
12265 W. Bayaud Ave.
Lakewood, CO 80228
(303) 986-8011

USTMAN SIR
YESSIR

Pd=96.3% @ 0.20 gph
Pfa=3.9%
Tanks to 15,000 gal

MRI
12/17/90

USTMAN SIR 1.91

Pd=98.4 @ 0.10 gph
Pfa=1.6%
Tanks to 18,000 gal

Ken Wilcox Associates
10/28/91

Warren Rogers Associates, Inc.
747 Aquidneck Ave.
Middletown, RI 02840
(401) 846-4747

WRA Statistical Inventory
Analysis, 5.1

Pd=99.98% @ 0.10 gph
Tanks to 18,000 gal

Ken Wilcox Associates
12/28/90

VAPOR-PHASE OUT-OF-TANK PRODUCT DETECTORS (EPA/530/UST-90/008)

<u>Manufacturer</u>	<u>Test Method Name/Model</u>	<u>Detector Type</u>	<u>Evaluator/Date</u>
Arizona Instrument 4114 E. Wood Street Phoenix, AZ 85040-1941 (800) 229-2930	Soil Sentry Twelve-X	Metal Oxide Detector	Radian Corporation 12/28/90
Gastech Environmental Monitors 8445 Central Ave. Newark, CA 94560 (415) 794-1973	Lust Meter	Combustible Gas Detector	Radian Corporation 1/28/91
HNU Systems, Inc. 160 Charlemont St. Newton Highlands, MA 02161 (617) 964-6690	Portable Photoionizer with Datalogging Model DL-101 w/10.2 EV Probe Model HW-101 w/11.7 EV Probe Model ISPI-101 w/10.2 EV Probe Model PI-101 w/11.7 EV Probe	Photoionization Detector	Carnegie Mellon Research 11/28/91 Carnegie Mellon Research 2/5/92 Carnegie Mellon Research 3/5/92 Carnegie Mellon Research 2/5/92
Keekor Environmental Products Scottsdale Airpark 1406 North 74th St. Scottsdale, AZ 85260 (602) 443-0001	Keeprobe VLM	Product Permeable Detector	Keekor Envir. Product 11/5/91
In-Situ Inc. 210 South Third Street P.O. Box I Laramie, WY 82070 (307) 742-8213	KW-140/KW-240 w/Type 1 Sensor	Product Soluble Detector	Carnegie Mellon Research 4/20/92 & 5/20/92

Mallory Controls
3029 E. Washington St.
Indianapolis, IN 46206-0706
(800) 343-2126

Pollulert Probe FD221V
Control Unit FD102N

Adsistor

Radian Corporation
7/8/91

Mine Safety Appliances Company
P.O. Box 427
Pittsburgh, PA 15230
(416) 776-8600

Tankgard

Metal Oxide
Semiconductor

Carnegie Mellon Research
3/26/91

Tankgard VIII

Metal Oxide
Semiconductor

Carnegie Mellon Research
3/28/91

Tank-Check Leak Detection Kit Detector Tube

Carnegie Mellon Research
5/31/91

PetroVend, Inc.
6900 Santa Fe Dr.
Hodgkins, IL 60525-9909
(708) 485-4200

PetroVend Model - TLD III
P/N 486914 S/N 00431

Metal Oxide
Semiconductor

Carnegie Mellon Research
3/26/91

Site Sentinel
Sensor 30-3201

Metal Oxide
Semiconductor

Carnegie Mellon Research
4/16/92

Tidel Engineering
2615 E. Beltline Rd.
Carrollton, TX 75006
(214) 416-8222

Tidel # 301-0328-001

Adsistor

Radian Corporation
7/8/91

Universal Sensors and Devices, Inc.
9205 Alabama Ave., Unit C
Chatsworth, CA 91311
(818) 998-7121

Leak Alert

Metal Oxide
Semiconductor

Carnegie Mellon Research
9/18/91

Veeder-Root
125 Powder Forest Dr.
Simsbury, CT 06070-2003
(203) 651-2700

TLS-350/ILS-350

Adsistor

Carnegie Mellon Research
7/24/92

Warrick Controls, Inc.
4237 Normandy Ct.
Royal Oak, MI 40873
(313) 545-2512

19 VP Continued
Vapor Safe "Portable"
Hydrocarbon Vapor Detector

Adsistor

Carnegie Mellon Research
9/10/91

19 VP Continued

LIQUID-PHASE OUT-OF-TANK PRODUCT DETECTORS (EPA/530/UST-90/009)

<u>Manufacturer</u>	<u>Test Method Name/Model</u>	<u>Detector Principle</u>	<u>Evaluator/Date</u>
Agar Corporation 1600 Townhurst Houston, TX 77043 (713) 464-4451	Leakwise Groundwater Monitor	RF attenuation	Ken Wilcox Associates 11/15/91
Armstrong Monitoring Corporation 215 Colonnade Road South Nepean, Ontario - Canada K2E 7K3 1-800-465-5777	Alertmaster 5100 (OPW-Dover)	Electrical Conductivity	Environment Canada 12/3/92
Emco Electronics 114-300 Mackenan Dr. Cary, NC 27511 (919) 460-6000	Leak Sensor Jr.	Thermal Conductivity	Ken Wilcox Associates 9/26/91
Horner Creative Products Associates 212 Morton St. Bay City, MI 48706 (517) 893-3360	Horner Ezy Skimmer Size #2	Separation	W.A. Kibbe & 2/8/91
IMO Industries, Inc. Cowles Road Plainville, CT 06062-1198 (203) 747-3000	Gems Smartwell Model WPM-535 with 53A sensor	Electrical Conductivity	Carnegie Mellon Research 4/22/93
In-Situ Inc. 210 South Third Street P.O. Box 1 Laramie, WY 82070 (307) 742-8213	Leak Detection Systems KW-140/KW-240 Monitors with Type 1 Sensor	Product Soluble	Carnegie Mellon Research 7/29/91
	Leak Detection Systems KW-140/KW-240 Monitors with Type 2 Sensor	Product Soluble	Carnegie Mellon Research 7/29/91

LTD Systems
820 North Sylvania
Fort Worth, TX 76111
(817) 834-4474

Leak Tracer Dye
external detection system

Color Development

Scientific Information
Services
2/2/93

Mallory Controls
3029 E. Washington St.
Indianapolis, IN 46206
(800) 343-2126

Pollulert Probe FD221G/TRA
Control Unit FD103

Electrical Conductivity

Radian Corporation
7/8/91

Pollulert Probe FD241R
Control Unit CD 101N

Electrical Conductivity

Radian Corporation
7/8/91

One Plus Corporation
1955 Shermer Road, Suite 100
Northbrook, IL 60062
(708) 498-0955

Leak Edge Models
100-3001, 100-4001

Product Permeable
Detector

Underwriters
Laboratories, Inc.
12/18/91

PermAlert ESP
7720 N. Lehigh Ave.
Niles, IL 60648
(708) 966-2190

PAL-AT
Models AT20C, AT50C, AT40K

Impedance Change
Electrical Conductivity

Carnegie Mellon
Research
2/11/92
Carnegie Mellon
Research
6/16/92

Tankwatch
Models PHMS, PHM10

Conductance Probe

Petro Vend, Inc.
6900 Santa Fe Drive
Hodgkins, IL 60525

Site Sentinel System
Sensor 30-3206, 30-3207,
30-3210

Product Permeable

Underwriters
Laboratory, Inc.
12/10/92

Pneumercator Company
120 Finn Court
Farmingdale, NY 11735
(516) 293-8450

Probe Models 9-901, 9-902
and 9-903

Capacitance Probe
For annual and
monthly monitoring

Ken Wilcox Associates
9/26/91

(Combination System:
Inventory, overfill
interstitial, piping and sump.)

Tidel Engineering
2615 E. Beltline Road
Carrollton, TX 75006
(214) 416-8222

Tidel #301-0324-001

Electrical Conductivity

Radian Corporation
7/8/91

Veeder-Root
125 Powder Forest Dr.
Simsbury, CT 06070-2003
(203) 651-2700

Ground Water sensor
TLS-350/ILS-350

Conductive Elastomer.

Carnegie Mellon
Research
11/20/91

W.L. Gore and Associates
4747 E. Beautiful Lane
P.O. Box 50899
Phoenix, AZ 85075-0699
(802) 431-0077

Gore-Leaklearn 1000

Capacitance

Carnegie Mellon
Research
9/10/91

PIPELINE LEAK DETECTION SYSTEMS (EPA/530/UST-90/010)

<u>Manufacturer</u>	<u>Test Method Name/Model</u>	<u>Accuracy/Comments</u>	<u>Evaluator/Date</u>
Absolute Zero Technology P.O. Box 217-A Adelphia, NJ 07710 (908) 409-0905	AAZTEK 1000-CLD Computerized Leak Detector	Line Tightness Test Pfa=<1% @ 0.1 gph Pd=>99%	Ken Wilcox Associates 6/9/92
Associated Environmental Systems 3651 Pegasus Dr. Bakersfield, CA 93308 (805) 393-2212	PLT-100R	Line Tightness Test Pfa=0% @ 0.1 gph Pd=100% @ 0.1 gph	Vista Research 11/20/90
Campo/Miller 11395 Highway 65 Porterville, CA 93257 (209) 781-6862	LS300 N/C	Hourly Test Pfa=0% @ 3 gph Pd=96.2% @ 3 gph	Jetronix Radio Engineering 3/1/91
	LS300-120	Pfa=0% @ 0.2 gph Pd=96.4%	Jetronix Radio Laboratories 4/7/92
	PL400	Line Tightness Test Pfa=0% @ 0.1 gph Pd=96.2% @ 0.1 gph	Engineering 5/16/91
Control Engineers 114 Menard Rd. P.O. Box 9037 Houma, LA 70360 (504) 872-4541	Model LLP2	Hourly Test Pfa=0% @ 3 gph Pd=100%	MRI 8/7/91
		Line Tightness Test Pfa=0% @ 0.1 gph Pd=100%	MRI 8/7/91
EMCO Wheaton 114 MacKenan Dr. Cary, NC 27511	EECO system Line Leak Detector	Hourly Test Pfa=<0.1% @ 3 gph Pd=99.9%	MRI 12/10/91

Gilbarco
7300 W. Friendly Ave.
P.O. Box 22087
Greensboro, NC 27420
(919) 547-5000

Hasstech, Inc.
5360-E Eastgate Mall
San Diego, CA 92121
(619) 457-5880

Heath Consultants Inc.
100 Tosca Drive
P.O. Box CS-200
Stoughton, MA 02072
(617) 344-1400

Horner Creative Products
212 Morton Street
Bay City, MI 48706
(800) 443-0711

Gilbarco Precision
Line Test

AcuRite Pipeline Tester
Single and Multiple Line

LineTite Pipeline Monitor

Petro Tite Line Tester

Horner Ezy Chek II/Line

Horner Ezy Chek/ Line

Monthly Monitor
Pfa=<0.1% @ 0.2 gph
Pd=99.9%

Line Tightness Test
Pfa=<0.1% @ 0.1 gph
Pd=99.9%

Line Tightness Test
Pfa=0% @ 0.1 gph
Pd=100% @ 0.1 gph

Line Tightness Test
Pfa=0% @ 0.1 gph
Pd=100% @ 0.1 gph

Line Tightness Test
Pfa=0% @ 0.062 gph
Pd=100%
Pfa=0% @ 3 gph
Pd=100%

Line Tightness Test
Pfa=0.37% @ 0.10 gph
Pd=99.99%

Line Tightness Test
Pfa=0+% @ 0.10 gph
Pd=100-%

Line Tightness Test
Pfa=0+% @ 0.10 gph
Pd=100%

MRI
12/20/91

MRI
12/29/91

Lamar University
3/25/91

Lamar University
3/25/91

Ken Wilcox Associates
10/15/91

Ken Wilcox Associates
3/11/91

W.A. Kibbe & Assoc.
12/17/90

W.A. Kibbe & Assoc.
12/18/90

Intergrated Product Systems, Inc.
506 Sandau Road, Suite 200
San Antonio, TX 78216
(210) 525-1333

Mallory Controls
2831 Waterfront Parkway
Indianapolis, IN 46214
(800) 343-2126

NDE Environmental Corp.
2000 Mariner Ave.
Suite 500
Torrance, CA 90503
(213) 542-4342

Perm Alert ESP
Research Research
7720 N. Lehigh Avenue
Niles, IL 60648
(708) 966-2190

ProEco, Inc.
7439 E. Hillsborough Ave.
Tampa, FL 33610
(813) 623-5003

Red Jacket Electronics
5800 Foxridge Drive
Mission, KS 66202
(913) 831-5700

Remote Tank Management
System RTM-1

Pollulert FD 200 PSRA

PTK-88

Model PAL-AT

Model AT20C, AT50C, AT40K

ProLine Test Series III

Red Jacket Diaphragm
Leak Detector

Red Jacket XLP

PPM 4000 and RLM 9000

Continous Line Tightness Test University of Texas
Pfa=1% @ 0.1 gph 3/21/91
Pd=99.5% @ 0.1 gph
Threshold leak detection
@ 0.05 gph

Hourly Test
Pfa=<1% @ 3 gph
Pd=>99%

Ken Wilcox Associates
6/24/91

Line Tightness Test
Pfa=1.35 @ 0.10 gph
Pd=99.8%

MRI
2/14/91

Pd=100%

Carnegie Mellon

Pfa=0% @ 0.16 gph
Liquid Leak detection,
TFH direct buried

2/11/92

Line Tightness Test
Pfa=0.1% @ 0.1 gph
Pd=99%

MRI
8/30/91

Hourly Test
Pfa=0% @ 3.0 gph
Pd=100%

Ken Wilcox Associates
12/21/90

Hourly Test
Pfa=0% @ 3.0 gph
Pd=100%

Ken Wilcox Associates
12/21/90

Hourly Test
Pfa=0% @ 3.0 gph
Pd=100%

Ken Wilcox Associates
9/16/91

Ronan Engineering 21200 Oxnard Blvd. Woodland Hills, CA 91367 (818) 883-5211	X76 DM-4 with JT-H2 Line Pressure Sensor	Monthly Monitoring Test Pfa=0% @ 0.2 gph Pd=100%	Ken Wilcox Associates 9/16/91
		Line Tightness Test Pfa=0% @ 0.1 gph Pd=100%	Ken Wilcox Associates 9/16/91
		Hourly Test Pfa=0% @ 3.0 gph Pd=100%	MRI 10/4/91
		Line Tightness Test Pfa=3.7% @ 0.1 gph Pd=100%	MRI 10/4/91
Schuster Instruments, Inc. Associates 211 Grover St. Kawkawlin, MI 48631 (517) 684-6638	Tel-A-Leak Version 1	Line Tightness Test Pfa=0% @ 0.1 gph Pd=100%	W.A. Kibbe & 3/13/91
Tanknology Corp. Int. 5225 Hollister St. Houston, TX 77040 (713) 690-8265	Tanknology Line Tester Manual TLD-1	Line Tightness Test Pfa=3% @ 0.1 gph Pd=99%	Ken Wilcox Associates 7/22/91
Tidel Engineering 2831 Waterfront Parkway Indianapolis, IN 46214 (800) 343-2126	Pipeline Leak Detector	Hourly Test Pfa=<1% @ 3 gph Pd=>99%	Ken Wilcox Associates 6/24/91
Tokheim Corporation 10501 Corporation Dr. Fort Wayne, IN 46801 (219) 423-2552	Tokheim Pressure Monitor Model 585A-PM	Hourly Test Pfa=0% @ 3.0 gph Pd=100%	Vista Research 11/2/90

Tracer Research Corp.
3855 N. Business Center Dr.
Tucson, AZ 85705

Triangle Environmental, Inc.
172 West Verdugo Avenue
Burbank, CA 91502-2132

Vaporless Manufacturing
9234 East Valley Road
Suite C
Prescott Valley, Az 86314
(602) 775-5191

Vaeder-Root
125 Powder Forest Dr.
P.O. Box 2003
Simsbury, CT 06070-2003
(203) 651-2700

William M Wilson's Sons, Inc.
P.O Box 309
Lansdale, PA 19446
(215) 855-4631

Tracer Tight Line Test System Tracer detection System
Pfa=2.9%
Pd=97.1%

TEI Model LT-3

Vaporless LD 2000

TLS Line Leak Detector
Series 8475

Model PM 101

30 Minute Test
Pfa=0% @ 0.1 gph
Pd=100%

Hourly Test
Pfa=0%
Pd=100%

Hourly Test
Pfa=0% @ 3 gph
Pd=100%

Monthly Monitoring Test
Pfa=0% @ 0.2 gph
Pd=100%

Line Tightness Test
Pfa=0% @ 0.1 gph
Pd=100%

Hourly Test
Pfa=0% @ 3 gph
Pd=100%

Ken Wilcox Associates
9/30/91

United States Testing
Company, Inc.
3/3/92

Ken Wilcox Associates
11/19/90

MRI
9/20/91

MRI
9/20/91

MRI
9/20/91

Vista Research
11/2/90

OTHER METHODS (NO ESTABLISHED EPA PROCEDURES)

Manufacturer

Test Method Name/Model

Comments

Arizona Instrument Corp.
411 E. Wood Street
Phoenix, AZ 85040-1941
(800) 229-2930

Liquid 330
Model 17-330-A/17-330-B

Liquid-phase detector
Operating principle: Refraction
Evaluated by Ken Wilcox Assoc. 7/2/91

TLM-830

Liquid-Phase interstitial product detector.
Operating principle: Refraction

Mallory Controls
3029 E. Washington St.
Indianapolis, IN 46206
(800) 343-2126

Pollulert Probe FD200HLM
Control Unit CD 101N

Liquid-phase in-tank overfill product detector.
Operating principle: pressure differential

Pollulert Probe MD210RA
Control Unit FD103

Liquid-phase interstitial product detector.
Operating principle: thermal/electrical

conductivity.

Omega Environmental, Inc.
P.O. Box 3005
Bothell, WA 98041-3005
overfill
(206) 486-4800

Model TC 110 System for
Petroleum Products

Leak Prevention System for double walled tanks and
piping systems. Provides pneumatic leak prevention,
pump shutdown interlocks, inventory control,

protection and remote monitoring.

Petro Vend, Inc.
6900 Santa Fe Drive
Hodgkins, IL 60525-9909

Petro Sentry and Site Sentinel
with Universal Sump Sensor

Float Switch

Petro Sentry and Site Sentinel
with Liquid Sensor

Thermal Conductivity

Petro Sentry and Site Sentinel
with Universal Reservoir
Sensor

Float Switch

Carnegie Mellon Research
10/15/92

Preferred-Rimcor Instruments
11 South St.
P.O. Box 1280
Danbury, CT 06801
(203) 743-6741

TG-EL-D3-ARF/HD-A1

System is a "three-in-one" product:
tank gauging, tank overfill alarm
and tank/sump/piping interstitial leak
monitor. Solely for double walled
tanks and double walled piping.

Raychem Corporation
300 Constitution Drive
Menlo Park, CA 94025-1154

Track Tek TTB Alarm and
Locator Module with TT502
Fuel Sensing Cable

Electrical Conductivity,
Carnegie Mellon Research
5/15/92

Steel Tank Institute
570 Oakwood Road
Lake Zurich, IL 60047
(708) 438-Tank

Permatank Installation
Test for Interstitial
Monitoring

Quantitative and continuously monitors
loss of vacuum for tanks

Tidel Engineering, Inc.
2615 E. Beltline Rd.
Charrolton, TX 75006
(214) 416-8222

Tidel #301-0330-001

Liquid-phase in-tank overflow product detector.
Operating principle: pressure differential

Tidel #301-0329-001

Liquid-phase interstitial product detector.
Operating principle: thermal/electrical

conductivity.

Veeder-Root
125 Powder Forest Dr.
Simsbury, CT 06070-2003
(203) 651-2700

Double-wall steel
interstitial:
TLS-250i, ILS-250, TLS-350,
and ILS-350

Liquid-phase detector
Operating principle: Float Evaluation:
Carnegie Mellon Research Inst.
7/17/92

Double-wall fiberglass
interstitial: TLS-250i,
ILS-250, TLS-350, and ILS-350

Liquid-phase detector
Operating principle: Float Evaluation:
Carnegie Mellon Research Inst.
7/17/92

Hydrostatic-Single & Dual
Floats for Interstitial
Monitoring:
TLS-250, ILS-250 and TLS-350

Liquid-phase detector
Operating principle: Float Evaluation:
Carnegie Mellon Research Inst.
12/8/92

Sump Sensor Switch:
TLS-250i, ILS-250, TLS-350
and ILS-350

Liquid-phase detector
Operating principle: Float Evaluation:
Carnegie Mellon Research Inst.
7/17/92

Discriminating Dispenser
Pan/Sump Sensor:
TLS-350

Liquid-phase hydrocarbon
Liquid detectors.
Operating principle: Ultrasonics and
conductive elastomer
Evaluation: Carnegie Mellon Research Inst.

Continuous Statistical
Leak Detect
TLS Series 300/400 with
8472 or 8473 probes

Pfa=<.1% @ 0.16gph
Pd=99% @ 0.20gph
Tanks 5-99% full
Tanks to 45,000 gal.

Statistical analysis
combined with ATG
Midwest Research Inst.
9/4/92

World Enviro Systems, Inc.
P.O. Drawer 789
Shawnee, OK 74802
(405) 275-3900

Vacuum Monitor Method
for Single Wall Tanks

This system uses a flexible membrane
liner. "bladder"/vacuum monitor system