

**Secondary
Containment &
Spill Buckets –
Inspection,
Testing, and
Repair
Solutions**

**Brian Derge – Tanknology
Inc.**

June 17, 2014



Welcome

- Introduction Tanknology
- Proposed Revisions to Federal Regulations
- Testing - 10 years of Containment Testing Data
- Inspections – Preparation
- Sump and Spill Bucket Repair Options
- Contact Information



About Tanknology

Tanknology Inc. is the leading provider of fuel system compliance testing solutions in the United States. We provide compliance and inspection services to nearly 50,000 sites and 3,000 customer annually. We support a diverse customer base, ranging from large National oil companies, hypermarketers, and logistics companies, to regional distributors and single site owner/operators across 50 states.

At A Glance

- Founded in 1988
- Tested over 1 million tanks
- Fleet of 125 service vehicles
- Responsible for compliance management at over 11,000 sites nationwide.



Our Services

- **Compliance Testing**
 - Tank Line and Leak Detector
 - Helium Leak Pinpointing
 - Aboveground Tank Testing
 - Secondary Containment Testing
- **ATG Certifications**
 - System Installations
 - Operational Verifications
- **Cathodic Protection Services**
 - Impressed Current Systems
 - Sacrificial Anode
 - Design, Installation and Repair
 - PetroScope™ Video Inspection
- **Stage I and II Vapor Recovery**
 - Testing (A/L, PD, etc.)
 - PVVC
 - Owner/Operator Training
- **Tank Deflection Analysis**
 - Proprietary Method



Our Services (cont'd)

- **Fuel Pure™ Fuel Filtration**
- **TankCam□/ Tank Clean**
 - Video Based
 - Water Injection and Removal
- **Site Inspection and Audit Services**
 - State Required Inspections
 - Customized Surveys
 - Periodic Compliance Inspections
 - Maintenance Assessments
- **Operator Training**
 - Outsource Class B Operator
 - Online Class C Operators
- **Site Upgrades/Light Construction**
 - Spill Bucket Replacement
 - Sump and UDC Repair
- **Meter Calibration**



Proposed Regulations-Containment

Operation and Maintenance (O&M)

- Secondary containment tested every 3 years or continuous monitoring required.

Phased in over 3 years based on tank installation date.
- Annual spill bucket testing or double wall buckets with continuous interstitial monitoring – due within 1 year.



Proposed Regulations – Testing

PEI RP 1200 – Recommended Practices

- Tank Annular Testing –

FG or Steel Tank, pull 10” hg or 6” hg respectively, hold for one to two hours depending on tank size, zero loss and interstitial space must be dry to pass.

- Line Annular Testing –

Line secondary must hold 5 psi with zero loss for one hour to pass



Proposed Regulations – Testing

PEI RP 1200 – Recommended Practices

- Sump / UDC Testing –

Fill Sump up 4” above the highest penetration point or sidewall seam, pass/fail criteria ~1/8” after one hour

- Spill Bucket Testing –

Fill Spill Bucket to 1.5” below top of spill bucket, pass/fail criteria < 1/8” drop in one hour

- Other Methods – *Vacuum on Sump/Spill Buckets, Accelerated Precision Volumetric Tests, Manufacturer Recommendations*



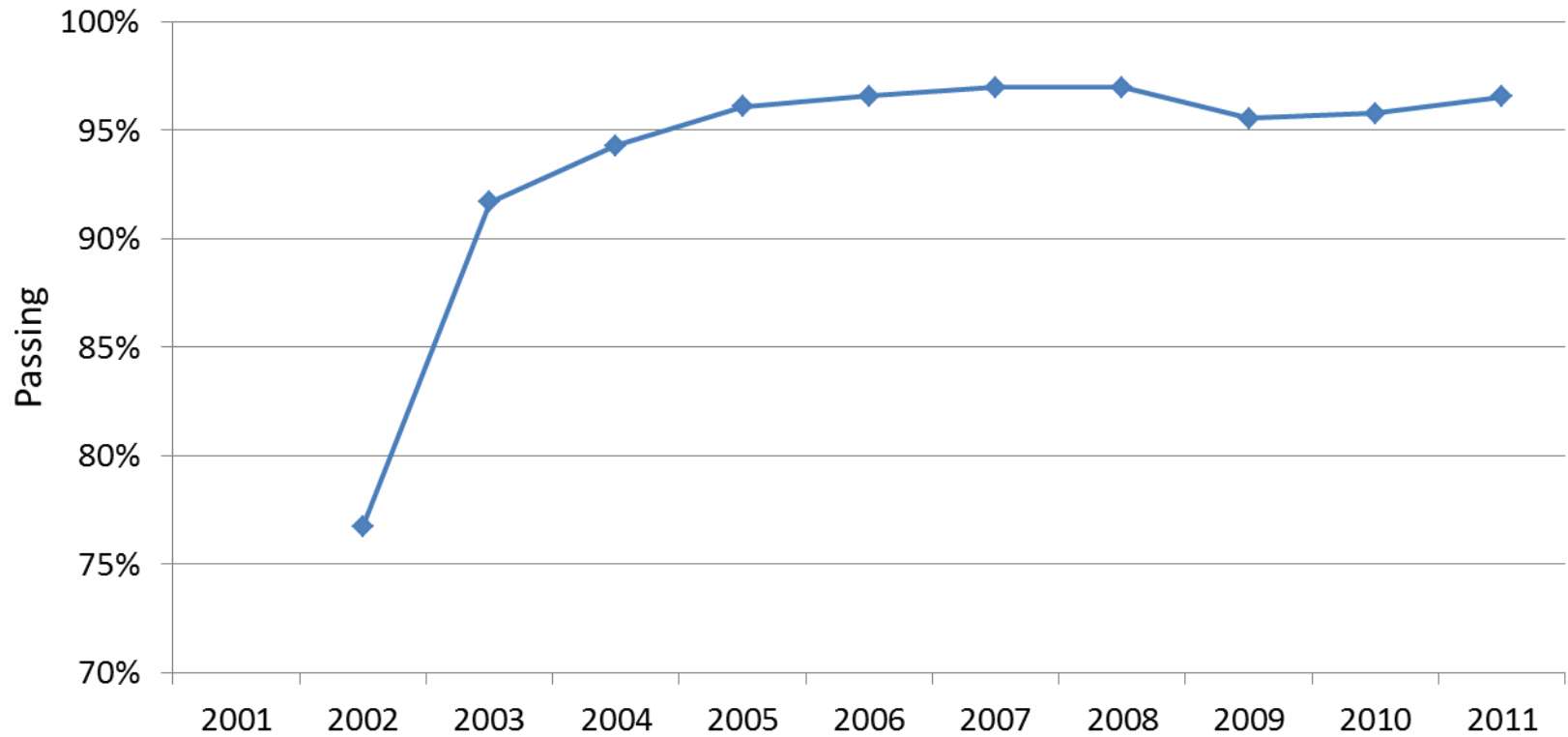
10 Years of Test Data – California

What Have We Learned?



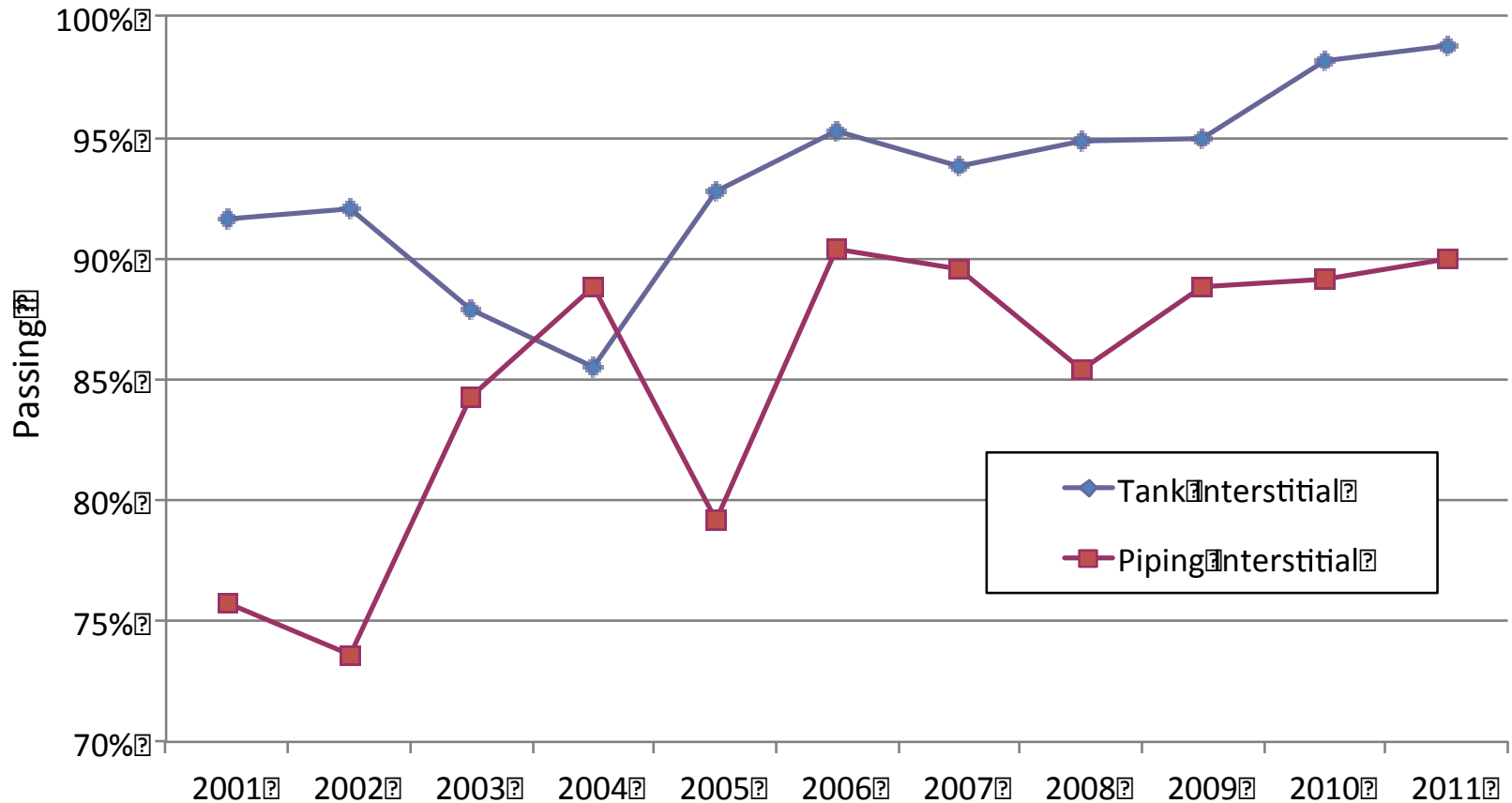
15 Years of Test Data

Spill Containers in California



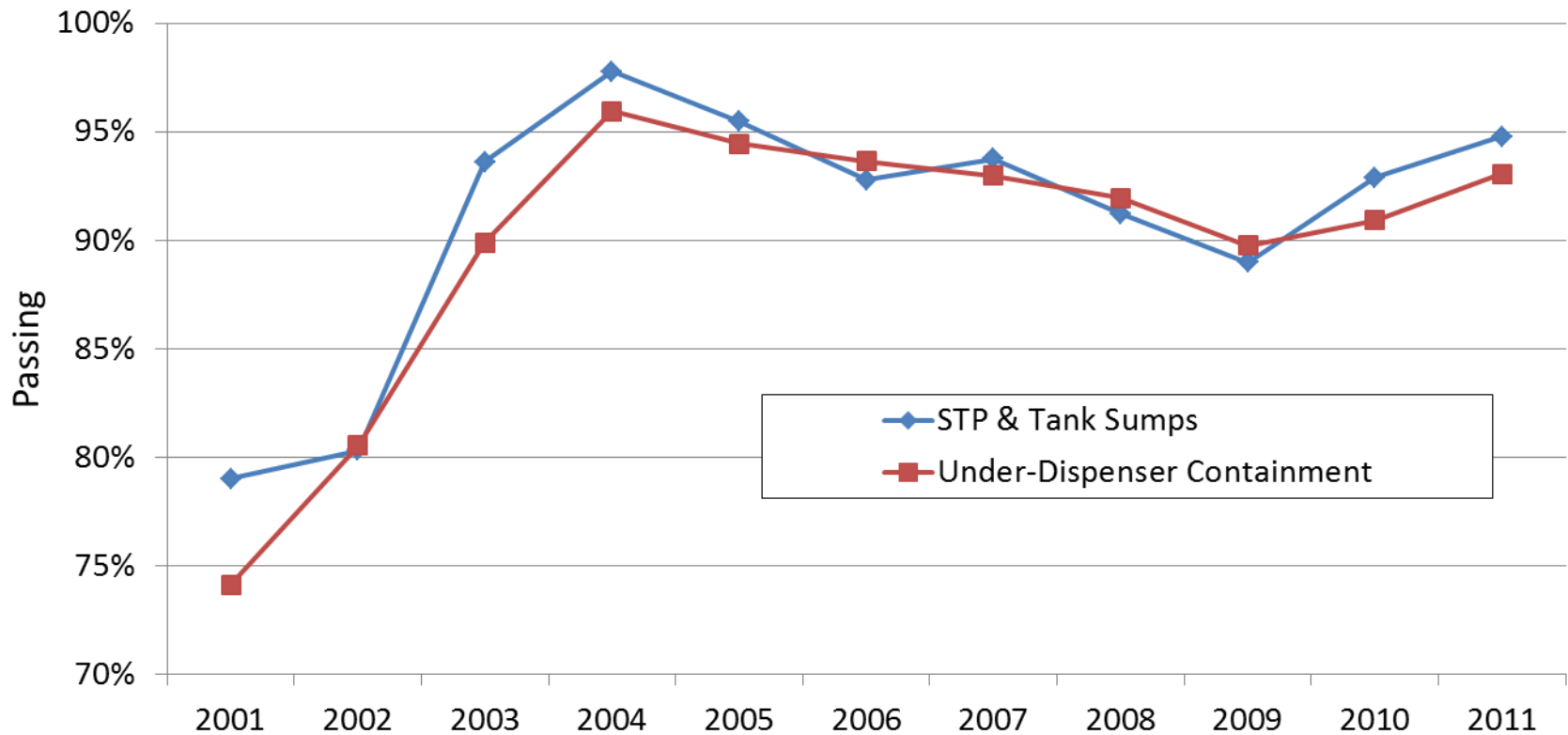
10 Years of Test Data

Tank and Piping Interstitials in California



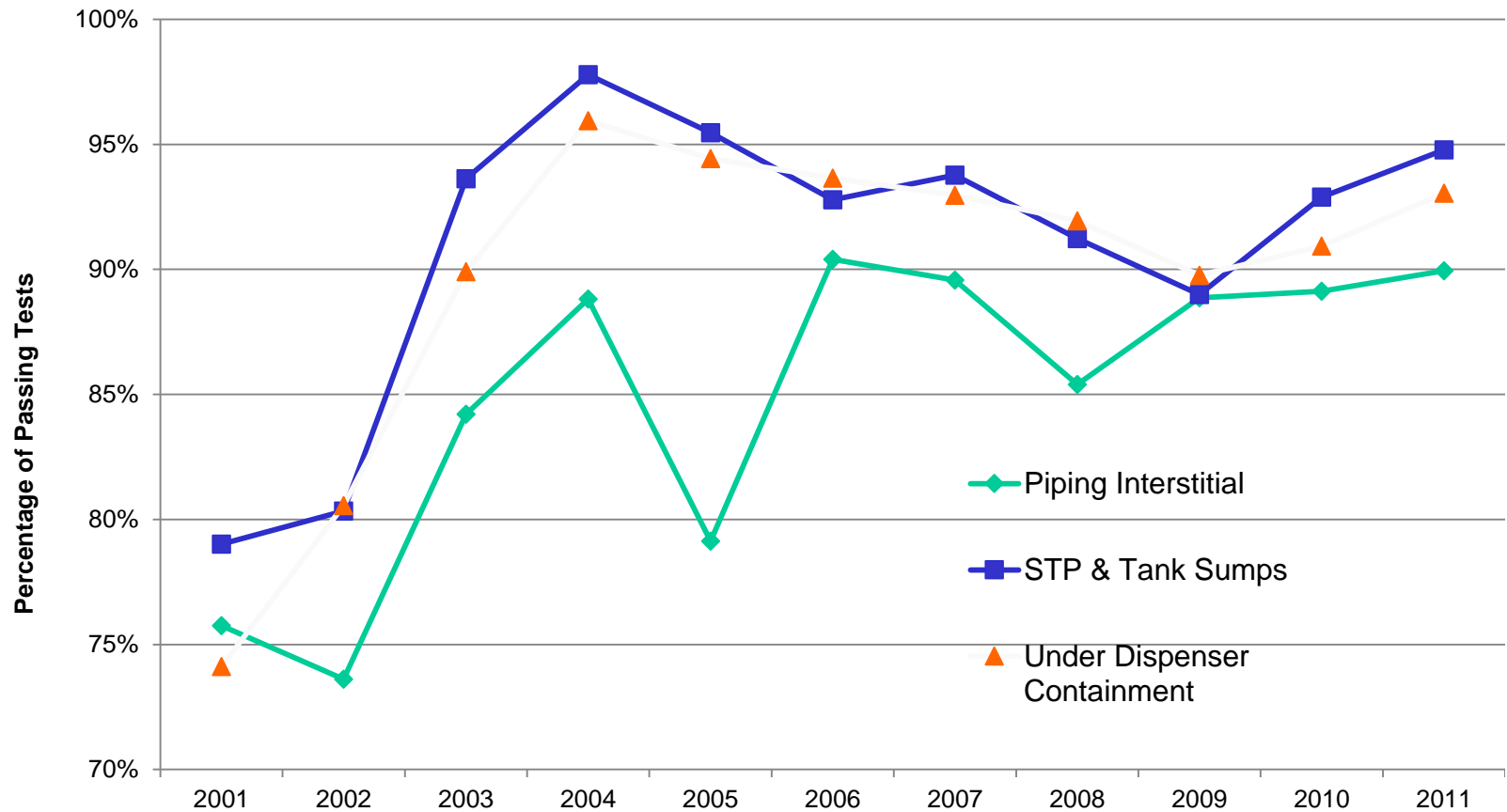
10 Years of Test Data

Tank Sumps and Under-Dispenser Containment in California



10 Years of Test Data

Tank Sumps and Under-Dispenser Containment in California



Ideas to Ponder

- Legacy Systems have a high failure rate – repairs are expensive – once made do seem to hold up
 - Goal is to prevent a release to the environment
- Line/Sump test or boot test –
 - On going operations and maintenance
- Efficacy of different types of systems – on going monitoring / testing, installation impacts, other



Inspection - Best Practices

Tank Sumps

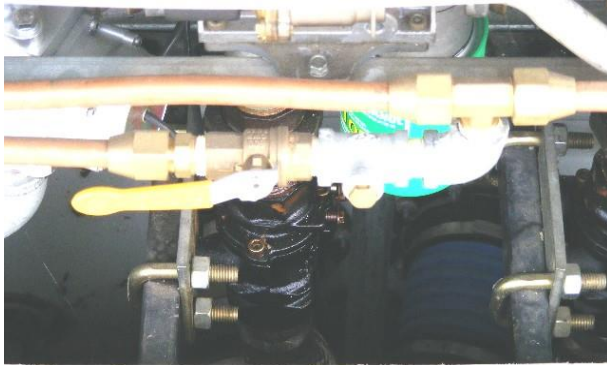


- Sump must be kept clean and dry.
- Sensor must be at the lowest point.
- Sensor must be in a straight up and down position.



Inspection - Best Practices

Dispensers



- Dispenser pan must be kept clean, dry, free of leaks.
- Check hanging hardware for cracks or leaks. (hoses, nozzles, break-a-ways etc)
- Sensor must be at lowest point.
- Sensor must be straight up and down.



Boots – Best Practices

Know your style.....



Boot Inspection – DW FG STP



Boot Inspection – DW FG STP



Boot Inspection – DW Flex STP



Boot Inspection – DW Flex STP



Dispenser Boots – Inspections

- From Proposed Federal Regulation- *dispenser sumps with continuous interstitial monitoring, check for a leak in the interstitial area*
- CA Guidance Letter March 1, 2013 - *To provide for the detection of a leak at the “earliest possible opportunity,” test boots and/or reducer fittings in the UDC of piping runs that are monitored for leaks by use of sloping the piping back to a monitored sump may stay on in any position. Piping runs that connect one UDC to another UDC must have the test boots and/or reducer fittings located in both UDCs either: 1) pulled back and off; or 2) oriented so that the test boot’s and/or reducer fitting’s port is in the downward position (located between the three and nine o’clock positions), uncapped, and with the valve stem capable of allowing for drainage so that a leak from the product piping can be detected ---*
http://www.swrcb.ca.gov/ust/tech_notices/boots_030113.pdf



Sump and Spill Bucket Testing and Repair

- Potential Issues with Leaking Sumps and Spill Containment
- Repair & Equipment Options
- Tanknology's Experience & Typical Repair Process



What Kind of Problems Occur?

- Groundwater enters sumps through leaks
- Sumps fill with water when it rains
- Costly pump-outs
- ATG and sump sensors in alarm
- Leak Detection equipment not functional
- Pumps, piping, and monitoring equipment suffers corrosion and deterioration
- NOV' s and fines



Effects of Water in Sumps



Moisture/Ethanol in Sumps



Why Tight Sumps Are Important

- Detect any leak of product into the sump
 - Prevent product release into ground
 - Prevent contamination of environment
 - Avoid cost of environmental clean-ups
- Allow for inspections and functionality testing
- Prevent compliance violations and/or fines
- Extend life of pumps, piping, and monitoring equipment
- Avoid cost of water pump-outs



Causes of Leaks and Water Intrusion

- Cracks and penetrations
- Torn, ripped, or missing entry boots
- Dislocation of mounting donuts
- Degradation of nitrile rubber and other seals
- Sump bung adapter (floor)
- Seam of collar & sump riser
- Non watertight or poor fitting lids
- Missing gaskets
- Manhole covers allow water to penetrate



Equipment & Repair Options

- **Tanknology Experience**
- PTI (Prevention Technologies) Repair Paste
- UnitLiner Repair Paste
- Icon/BlueLine Split Repair Boots
- Diversified Split Repair Boots
- ECP/EPP Sump Shield Retrofit Cover
- NEF (National Environmental Fiberglass) Retrofit Cover
- Universal Valve Retrofit Cover
- Emco Retail (Spill Container Retrofit)
- **Other Options**
- Bravo Retrofit Cover
- CNI Retrofit Cover
- Franklin (Phil-Tite) Spill Container Retrofit
- RhinoTite Retrofit Cover



Prevention Technologies PTI

- Originally developed at Amoco Research
- Advanced polysulfide used as pour-in-place retrofit containment.
- Amoco realized that 85% of all contamination is at the fill, under dispenser & submersible.
- Impervious to gasoline, E-85,
- Compatible with most materials.
- Great sealant for cracks, gaps



Prevention Technologies



PTI Paste



Icon Technologies



PRODUCTS & SUMP REPAIR SOLUTIONS

NEW CONSTRUCTION FITTINGS

- K1 Series Single Sided Penetration Fittings
- K2 Series Fittings for Continuously Monitored Double Wall Sumps & Single Wall Sumps
- ABKFD Double Sided Kwik Fit Fittings for Curved or Flat Single Wall Sumps
- UV-KFD Series Penetration Fittings for Above Ground Applications
- KFD Double Sided Kwik Fit Fittings for Single Wall Flat Sumps
- KFDC Double Sided Kwik Fit Fittings for Single Wall Curved Sumps
- PED & PEDC Series Pellethane Fittings for 6" & 8" Pipe
- PER Series Pellethane Reducers / Test Reducers
- PER Series Pellethane Caps
- PEI Series Pellethane Inserts
- ER Series Alcryn Reducers / Test Reducers & Corrugated Duct Seals

SPLIT REPAIR FITTINGS

- SB Series Pellethane Split Repair Boots
- SBTCI Split Repair Boots for Total Containment Fittings
- SBTCIF Split Repair Boots with Fill Tube for Total Containment Fittings
- TCI Non-Split Repair Boots for Total Containment Fittings
- TCIF Non-Split Repair Boots with Fill Tube for Total Containment Fittings
- SI Series Pellethane Split Inserts & SI Series Dam Stops
- SR Series Pellethane Split Reducers / Test Reducers

EASY RISER - JOINTED VENT RISER

- Easy Riser Jointed Vent Riser

SEALANTS & BONDERS

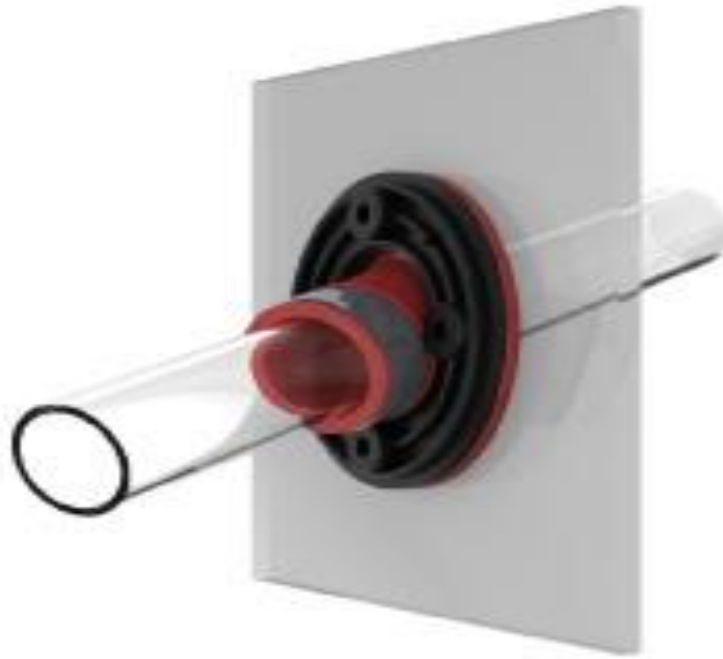
- Bostik 1100FS
- Parasealant 626
- Petrol-Seal
- Polyfusion
- Blue Bond 801
- Blue Fill 4036
- Fast Foam & Hydro Active Safe Foam
- Blue Seal Glue & Anti-Corrosion Clamp Spray
- Sealant Wipes & Static Mixers

WATERTIGHT RETRO-FIT SUMP LIDS & VACUUM TEST KITS

- Watertight Retro-Fit Sump Lids
- Magnum VI Vacuum Test Kit



Icon Technologies



IRF 4B 1.4 ANG

ELECTRICAL REPLACEMENT REPAIR
SB Series Pellethane Split Repair Boots



Icon Technologies



SPLIT REPAIR



Diversified Products



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Product Families

Diversified Products Manufacturing has sold over one million Penetration Fittings since 1991 and currently has an acceptability rating of better than 99.999%. The Alcryn materials used in DPM products have been tested to 1996 Protocols and the Fuel-Thane materials have been tested to 2005 Protocols by a nationally recognized testing laboratory. All DPM's products carry a 3 year warranty, an optional 20 year warranty is available on our filled products.



[Click to open in PDF](#)

Threaded Penetration

[More details](#)

- Cost Effective Installations - 1 Hole to Drill
- All Pipe Sizes 1/2 " through 4.5"



[Click to open in PDF](#)

Studded Penetration

[More details](#)

- Inverted Stud Plate Eliminates Leak Paths from sump interior
- Traditional Studded Penetrations Available
- Sizes Available 1/2" through 8"



[Click to open in PDF](#)

Termination and Test Fittings

[More details](#)

- For all Double Wall Pipe Sizes Worldwide
- Molded in Air Test Valves
- 10 PSI and 35 PSI G Rated Reducers



[Click to open in PDF](#)

Split Repair Products

[More details](#)

- Direct over the Stud Repair Models for Environ Boots
- Repairs for all Manufactures of Fittings



[Click to open in PDF](#)

Other Isolation Products

[More details](#)

- Sump Adapter Kits
- Riser Isolation Kits
- Spill Container Liners

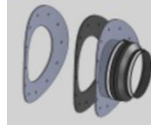


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Sealants and Adhesives

[More details](#)

- Polysulfide - Liquid and Paste
- Polyethylene Bonding Materials



Industrial Penetrations, Reducers and Centralizers

[More details](#)

- Custom Fabricated 8" through 16" Flat or Round Surface Penetrations
- Terminating and Test Reducers for Large Double Walled Pipes
- Centralizers

Other important links

[DPM Product Warranty](#)

[DPM Product News](#)

[DPM Contractor Catalog](#)

[DPM MSDS Files](#)



Piping Entry Boot and Test Boot



Split Boot Repair



Conduit Entry Split Boot Repair



Conduit Entry Split Boot Repair



Sump Shield Retrofit Lid

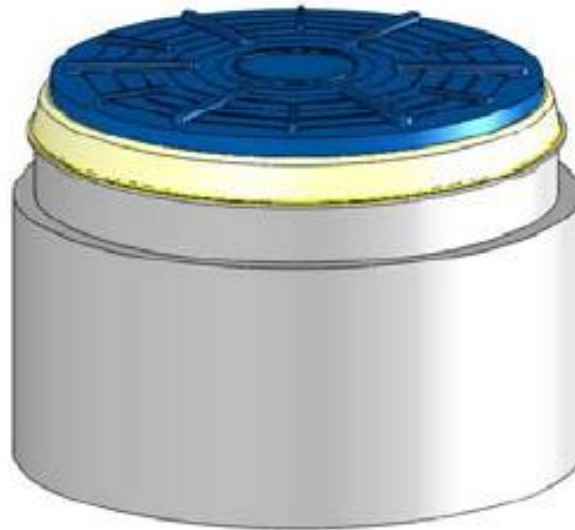
Manufactured by
Environmental Containment
Products (was Environmental
Protection Products – EPP)



Sump Shield



Water-Tight Lid Replacement



WATERTIGHT RETRO-FIT SUMP LIDS
For Poly Sumps



National Environmental Fiberglass

ADVANTAGE Water Intrusion Lids



Seals water out of sumps

UL Listed
Compression
Seal

Strong Composite
Material

**QUICK FIX
RETRO LID**

Fits FRP & poly
1 Hour
Installation

NEF

National Environmental Fiberglass, L.L.C.



www.NEFProducts.com
Email: NEFProducts@aol.com
Phone: 760-246-0648



Universal Valve



The Most Complete Line of UST/AST Products!

SUMP COVER

NEW!

UNIVERSAL SUMP RETROFIT COVER

Application -

Eliminates leaking polyethylene and fiberglass sump covers without breaking concrete.

Part Number - 1943



Features -

- ✓ Installs in minutes
- ✓ Rugged steel ring and cover for maximum strength
- ✓ Mechanical seals insure maximum life and tightness
- ✓ Field Adjustable Clamping device
- ✓ Does not rely on glues or adhesives that deteriorate after 1 year

**UNIVERSAL
Advantage**

Only Universal's retrofit cover truly eliminates water leakage. Our **DOUBLE SEAL** design keeps your sumps completely dry!

UST Regulations require that all of the components of a UST system be tested for "product tightness"



Emco Spill Container Retrofit

EMCO[®]
WHEATON RETAIL

A1005-505
Replacement Stainless
Steel Spill Containment

**Repair your Spill Containment
with Stainless Steel**
Never Break Concrete



A1005-505 Replacement Stainless Steel Spill Containment

- Containment vessel completely isolates old manhole
- Lid seals inside stainless steel vessel

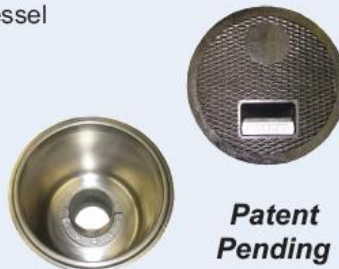
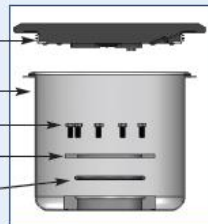
Cast Iron Cover
With Triple Wiper Seal

Stainless Steel
Containment Vessel

Stainless Steel Bolts

2 Piece Stainless
Steel Flange

O-ring Seal

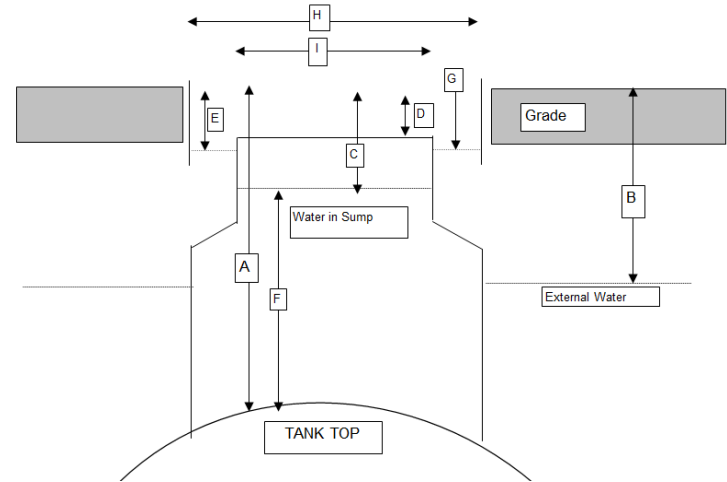


**Patent
Pending**



Initial Survey

- Conduct site survey to identify necessary repairs
- Check groundwater level to see if same as in sump
- May require water pumpout
- Take necessary measurements
- Perform testing as necessary to identify leaks
- Determine best repair options



Dimensions	Date:	Sump 1	Sump 2	Sump 3	Sump 4
Product (R, M, P, D, K)					
Sump on (STP, Fill, Other)					
A Grade to Sump bottom					
B Grade to external water <i>(Critical item)</i>					
C Grade to water in sump					
D Grade to top of sump riser					
E Grade to percolation area					
F Inches water in sump					
G Inches water in percolation area					
H Manhole skirt ID					
I Sump riser OD					



CHOOSE YOUR WEAPONS

- Each sump requires careful attention and a thoughtful decision.
- Each sump is different. Fiberglass? Poly? Different pipe entry fittings? No conduit seal-offs? Manhole ring draining into soil? High water table preventing repairs?
- Pellethane split boots
- PTI paste
- Aqua seal
- Water-tight lids
- Tanknology VPLT test.



Sump Repair Process



Water Removal

- Barricade the area. Safety First.
- Pump water to Tote tank for Disposal



Safety – O2/LEL Meter Readings



Initial Cleanup



Preparation / Powerwashing



Clean and Dry – Ready to Repair



The Right tools for the job



Sump Lid Problems?



Attach Compression Bracket



Install support ring and gasket



Watertight lid with inspection port



Paste and Retrofit Cover



Paste and Retrofit Cover



Paste and Retrofit Cover



Sump Testing

VPLT – Accelerated Electronic Hydrostatic Test developed by Tanknology



Sump Testing Options

Options include:
Incon TS-STS and
Sherlock Vacuum Tester



Spill Container Test



And the most popular....





Thank you ...

Brian Derge

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