

**National Tanks Conference**  
**Containment Sump Inspections**  
**September 15, 2018**  
**Louisville, Kentucky**



**KEVIN HENDERSON CONSULTING, LLC**



# ANNUAL WALKTHROUGH INSPECTION

Requires all “containment” sumps to be inspected

- Just what is a sump?
- What does the inspection involve?
  - What am I looking for?
- What happens as a result
  - What action(s) must be taken?



# HOW TO DOCUMENTS



## UST Systems: Inspecting And Maintaining Sumps And Spill Buckets

Practical Help And Checklist



*Printed on recycled paper*

PEI/PMG-08

## Recommended Practices for the Inspection and Maintenance of UST Systems





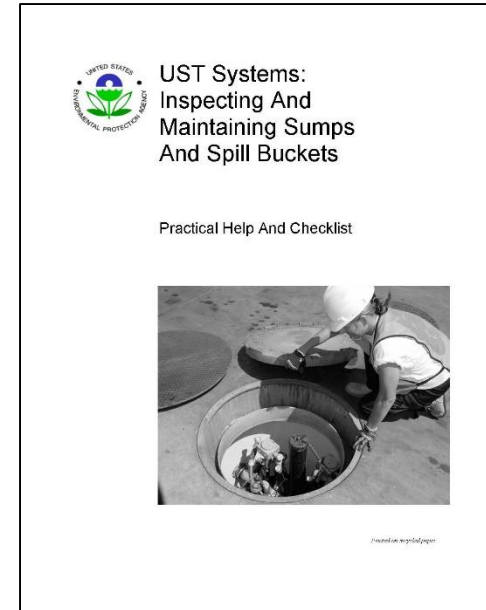
# JUST WHAT IS A SUMP?

## EPA definition

- Contained sump
- Uncontained sump
- Spill bucket

## Everybody else

- Sump
  - Is it tight or supposed to be tight? = Containment Sump
- Manhole



# JUST WHAT IS A SUMP?

These are sumps



STP or Tank Sump



Transition Sump



Dispenser Sump

# JUST WHAT IS A SUMP?

Probably



Could be



Might be





# JUST WHAT IS A SUMP?

These **AIN'T** no stinking sumps





# JUST WHAT IS A SUMP?

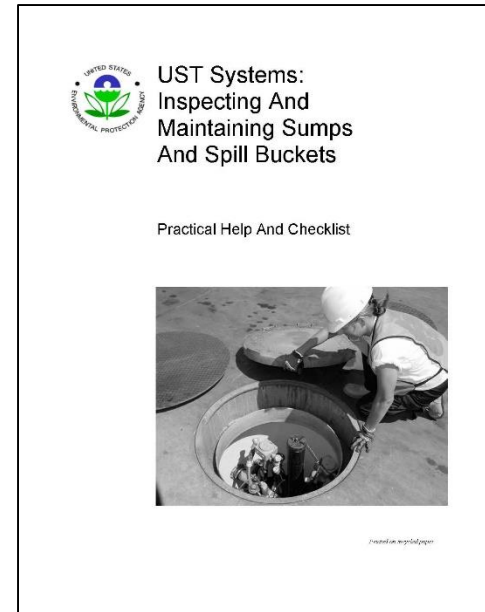
I could be wrong but I believe this is more commonly referred to as a Spill Bucket



# WHAT AM I LOOKING FOR?

## What Should You Look For When You Inspect Your Turbine, Dispenser, And Transition/Intermediate Sumps?

- Are the lids tight and sealed correctly?
- Are the sump walls intact?
- Is the sump free of debris, liquid or ice?
- Is the sump free of cracks or holes?
- Are sump components leak-free?
- Is the sump free of staining/new staining?
- Are the sensors positioned correctly?
- Are all penetrations into the sump in good condition?
- Are the test boots positioned correctly and in good condition?
- Is the piping and other equipment in good condition?



# ARE THE LIDS TIGHT AND SEALED CORRECTLY?

Only applies to  
Containment Sumps w/  
Interstitial Monitoring

Does it really matter  
if there is no surface  
water issue?

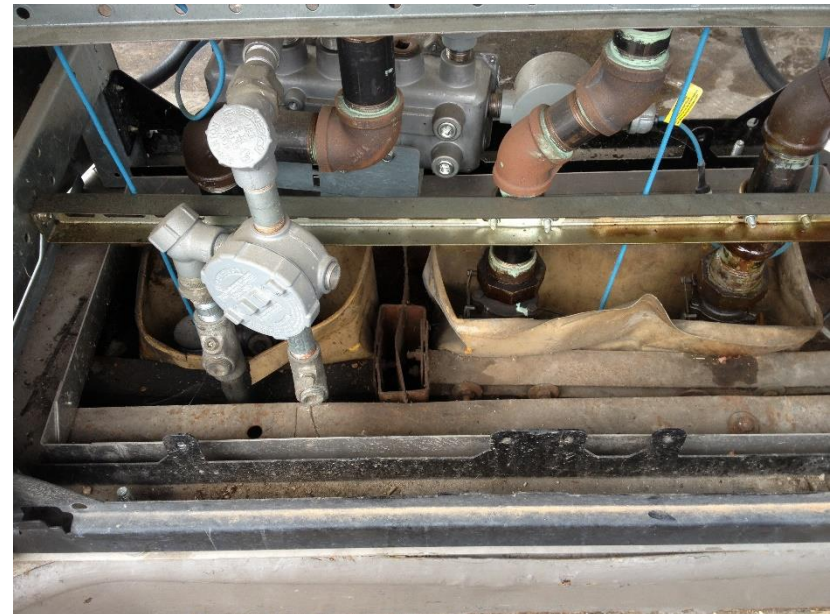




# ARE THE SUMP WALLS INTACT?

Only applies to  
Containment Sumps w/  
Interstitial Monitoring

Does this matter if I  
do “Low Level”  
integrity testing?





# IS THE SUMP FREE OF DEBRIS, LIQUID OR ICE?

Debris: Applies to all sumps & manholes



Liquid: Only applies to Containment Sumps w/ Interstitial Monitoring



ICE – What's that?

# IS THE SUMP FREE OF CRACKS/HOLES?

Only applies to  
Containment Sumps w/  
Interstitial Monitoring

Does this matter if I  
do “Low Level”  
integrity testing?





# ARE SUMP COMPONENTS LEAK FREE?

Applies to all sumps and manholes



# IS THE SUMP FREE OF STAINING/NEW STAINING?

Only applies to  
Containment Sumps w/  
Interstitial Monitoring

This usually tells you  
where the sump is  
not tight





# ARE THE SENSORS POSITIONED CORRECTLY?

Only applies to  
Containment Sumps w/  
Interstitial Monitoring

Critical if you do “Low  
Level” integrity  
testing



ARE ALL PENTRATIONS INTO THE SUMP IN GOOD CONDITION?

Only applies to  
Containment Sumps w/  
Interstitial Monitoring



Does this matter if I  
do “Low Level”  
integrity testing?



ARE THE TEST BOOTS IN GOOD CONDITION AND POSITIONED CORRECTLY?

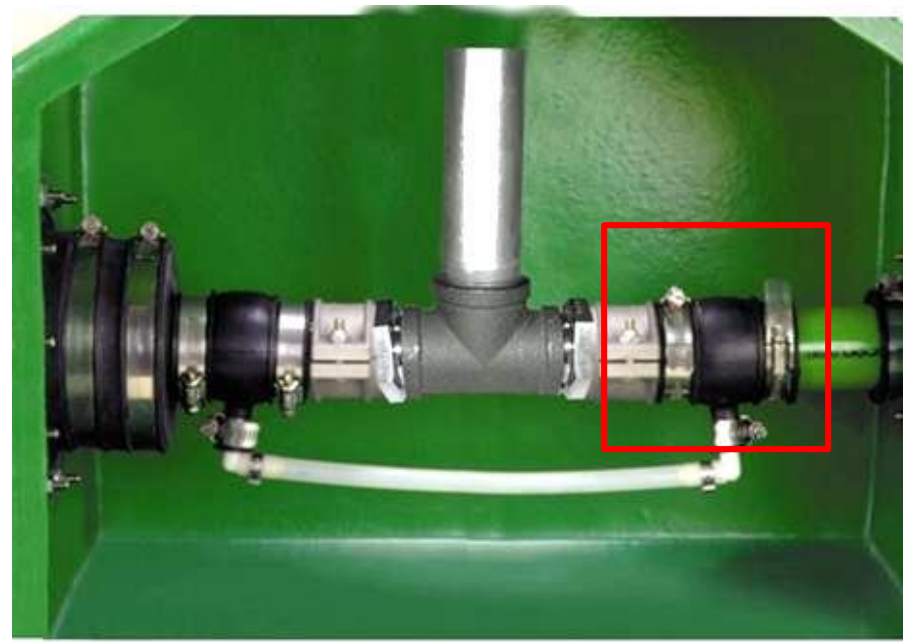
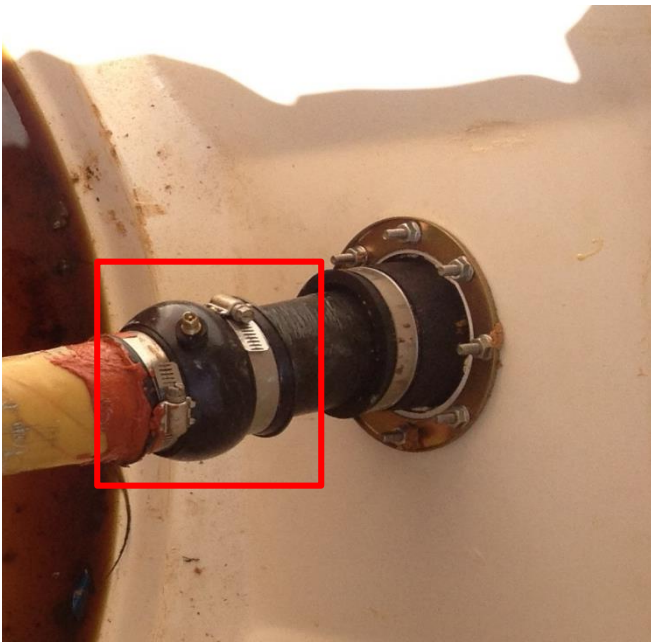
QUESTION: What are Test Boots and does it really matter what condition or how positioned?

ANSWER: It depends

- What type of piping is it (manufacturer)?
- What type of fittings are used?
- Is the interstice supposed to be open or closed within that sump?
- Is the Containment Sump used for Interstitial Monitoring?

ARE THE TEST BOOTS IN GOOD CONDITION AND POSITIONED CORRECTLY?

What are Test Boots?

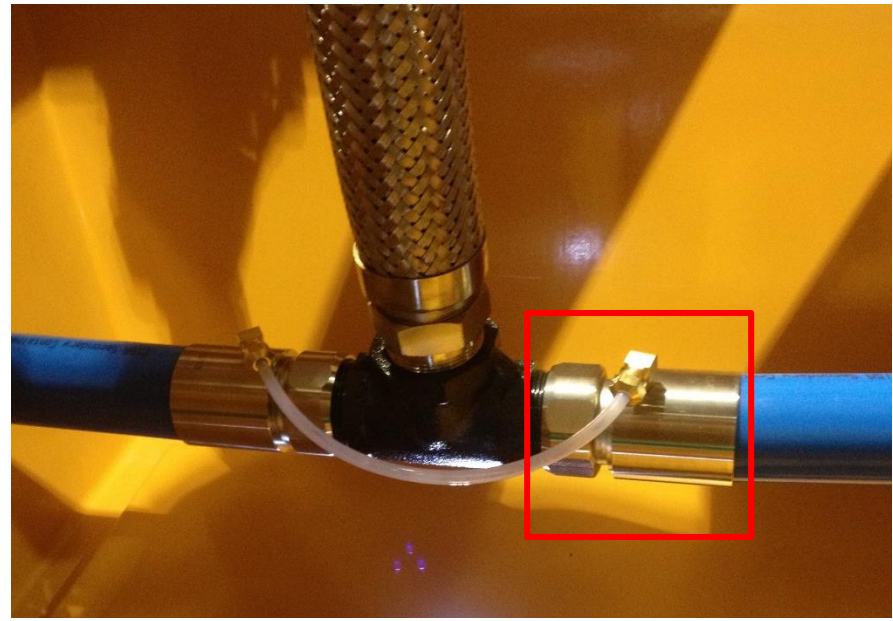
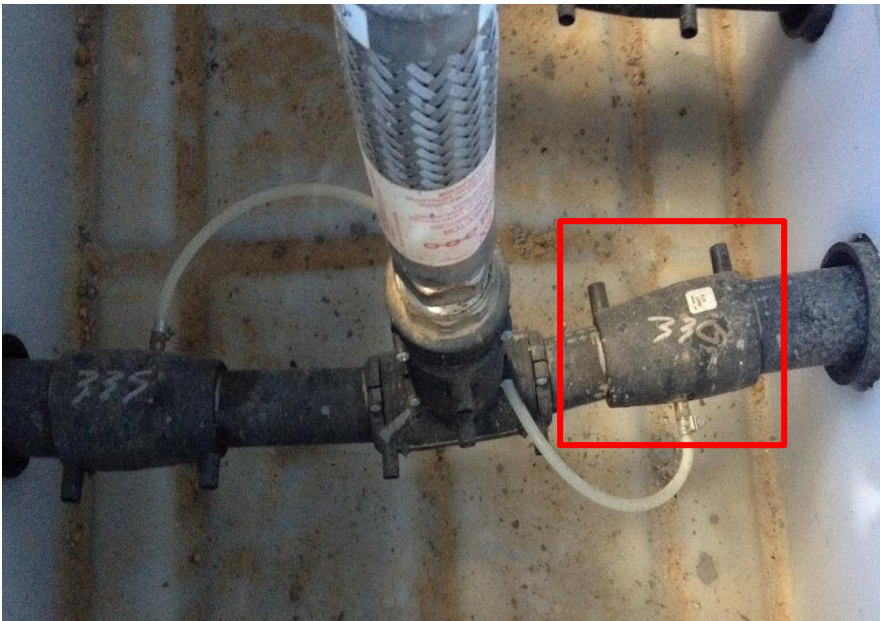


“Traditional” Rubber Boots



ARE THE TEST BOOTS IN GOOD CONDITION AND POSITIONED CORRECTLY?

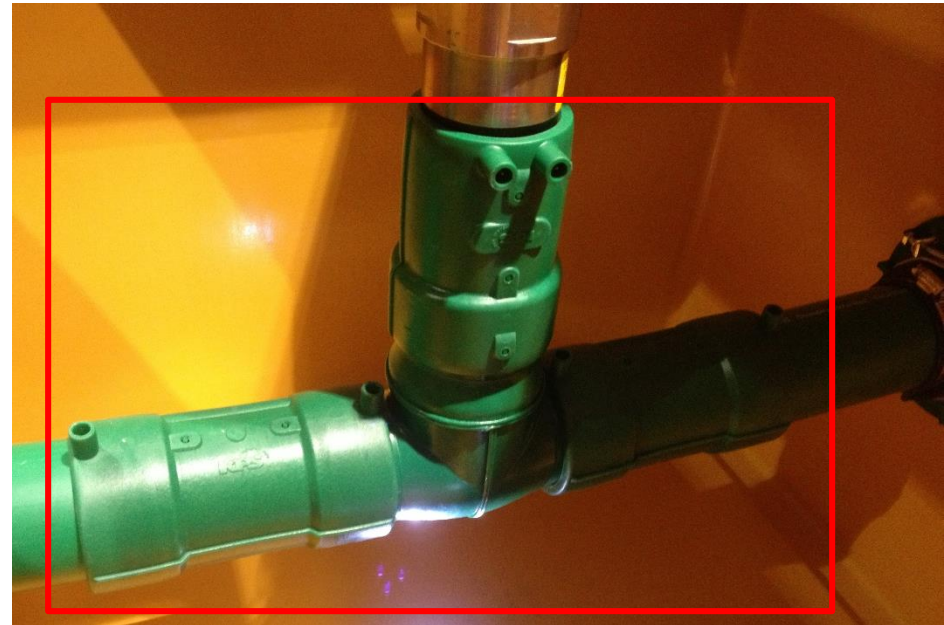
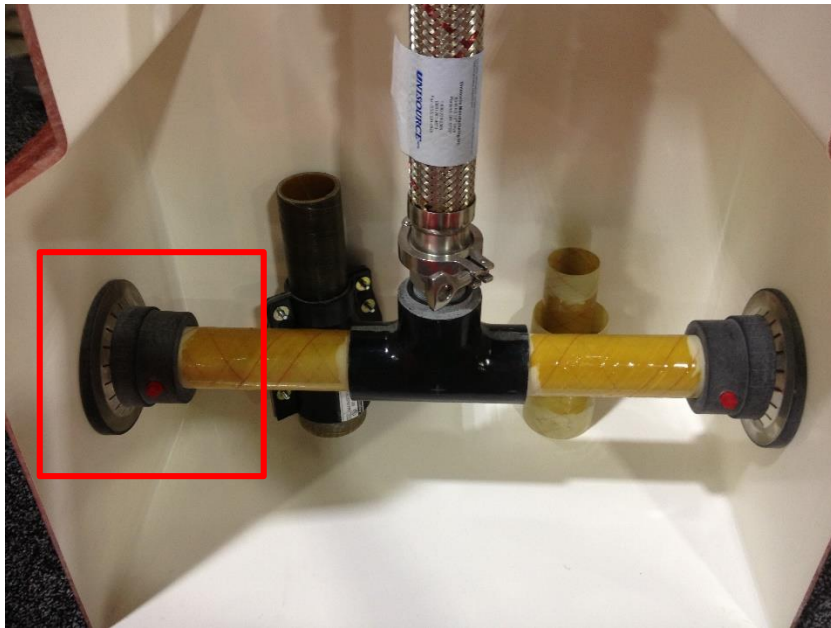
What are Test Boots?



“Integral” end fittings

ARE THE TEST BOOTS IN GOOD CONDITION AND POSITIONED CORRECTLY?

What are Test Boots?



Double-walled fittings



ARE THE TEST BOOTS IN GOOD CONDITION AND POSITIONED CORRECTLY?

What are Test Boots?

ANSWER: Maybe there are none

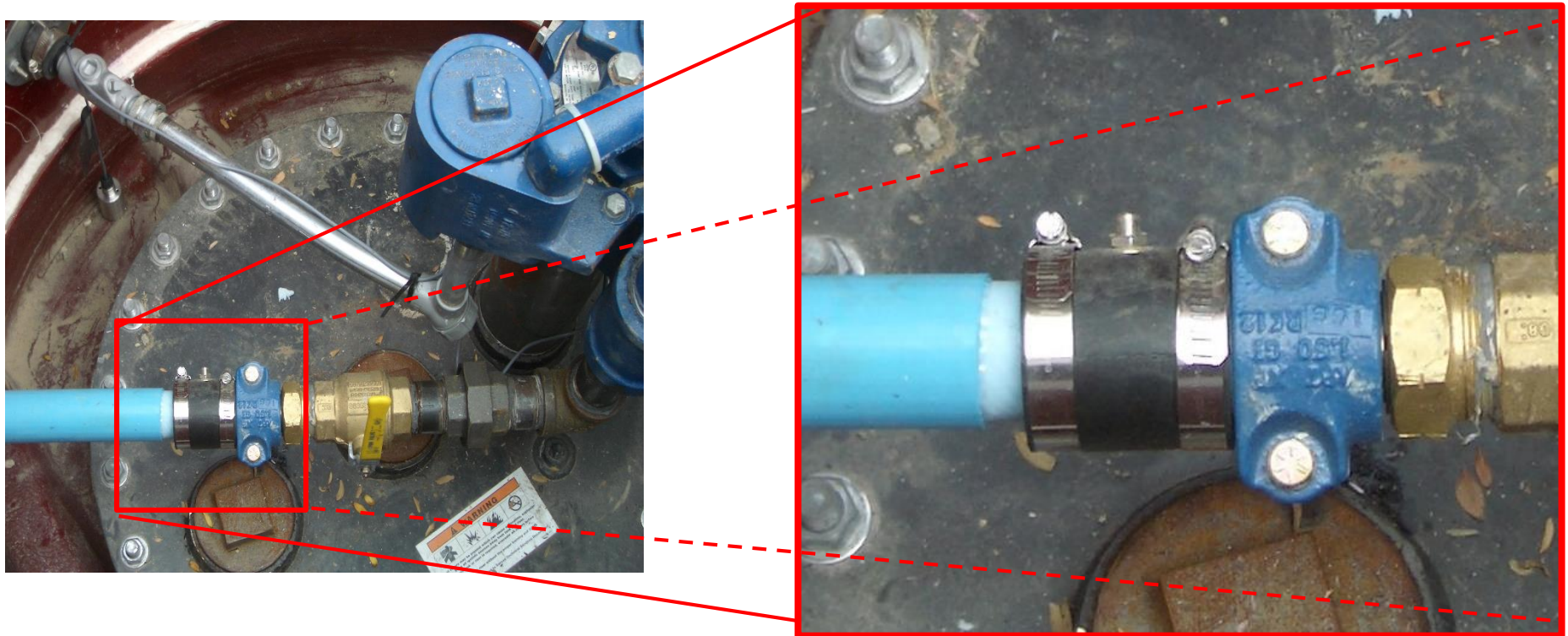




ARE THE TEST BOOTS IN GOOD CONDITION AND POSITIONED CORRECTLY?

What does positioned correctly mean?

ANSWER: It depends

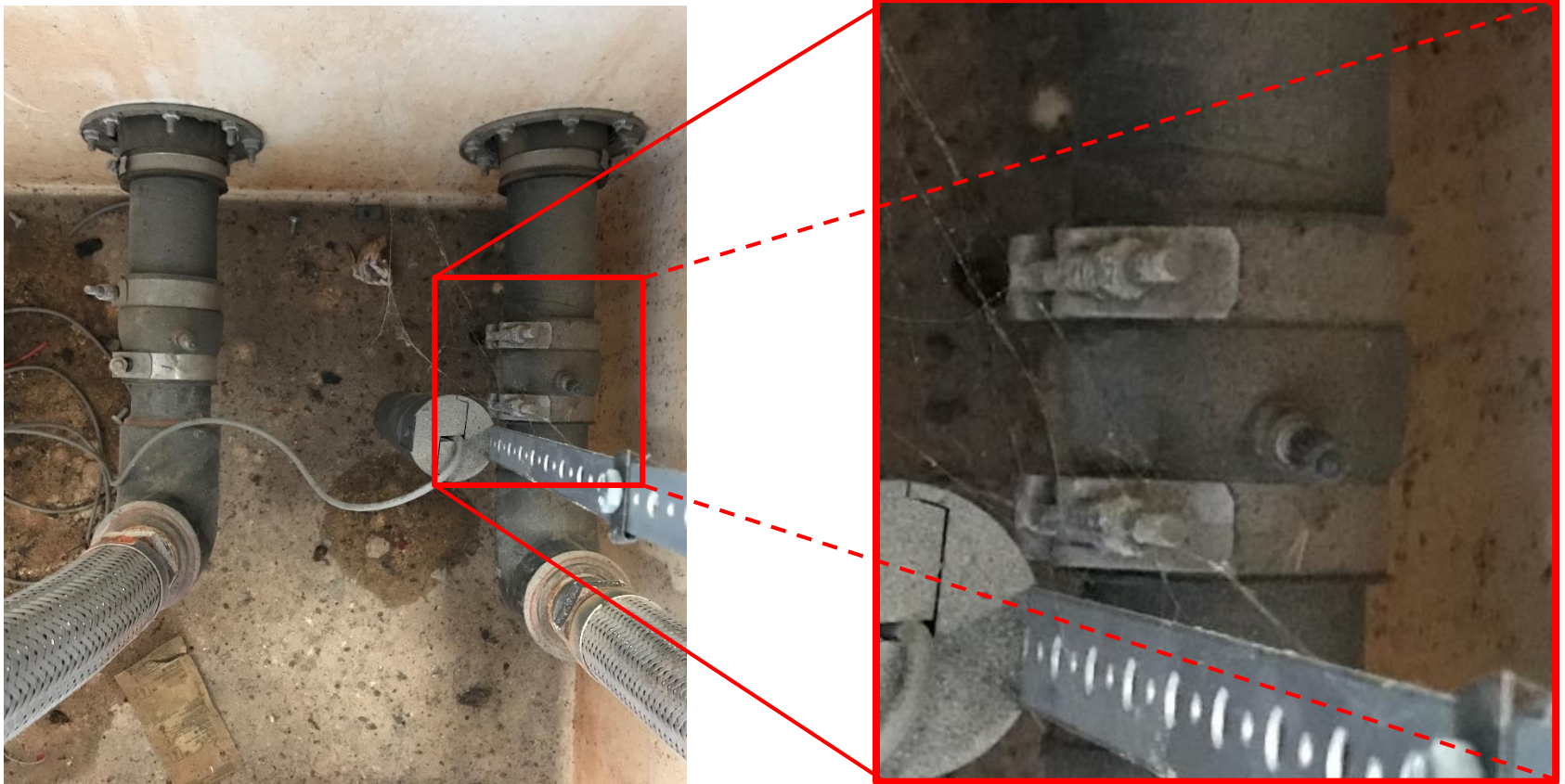


Is the sump required to be monitored?

ARE THE TEST BOOTS IN GOOD CONDITION AND POSITIONED CORRECTLY?

What does positioned correctly mean?

ANSWER: It depends



Is the sump required to be monitored?

IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

EXCELLENT



## CONDITION RATING SYSTEM

WTF!



GOOD



HORRIBLE



OK



UGLY



MAYBE





IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

Excellent



IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

Good



IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

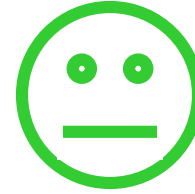
OK





IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

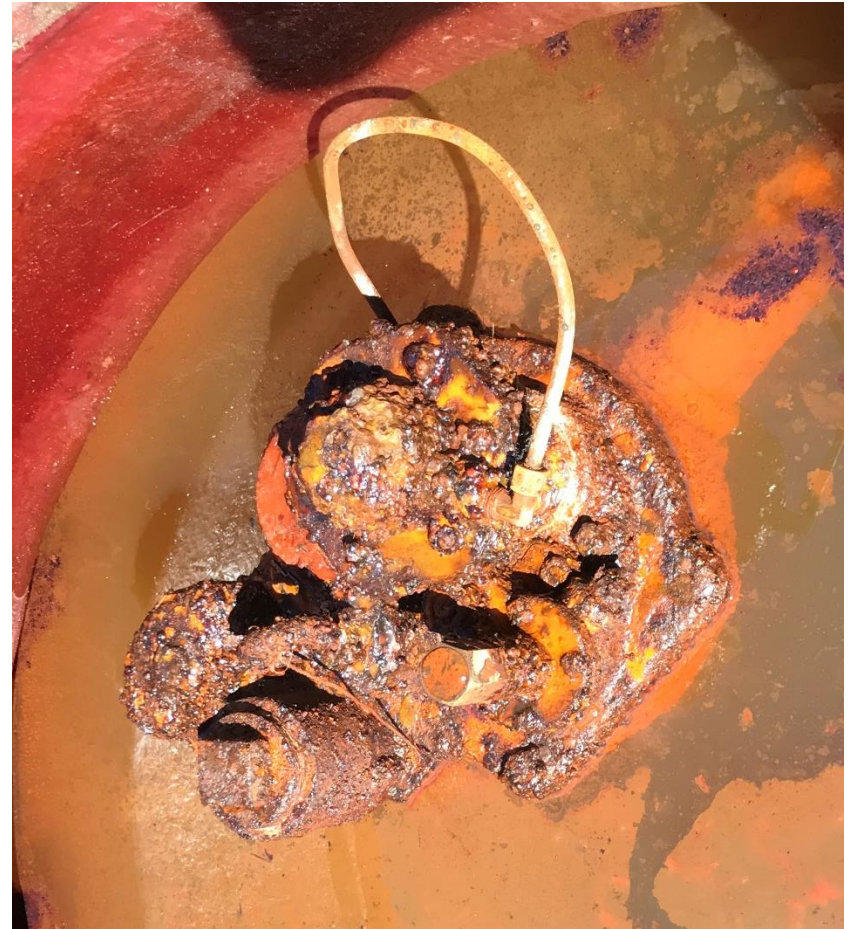
MAYBE





IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

UGLY





IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

HORRIBLE





IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?



WTF!!!!





IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?  
Just About Completely Recognizable



# IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

Copper seems to have some “issues”



The Green Monster



The Black Mold of Death



# IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

Can't Tell



Don't have to remove water  
unless sump is monitored



IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

Good thing I don't have to remove the "water"





IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

I do have to remove free product





IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

Do I have to remove the mud?





IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

Hmmm.....





IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

Lest we forget about our old “friend”





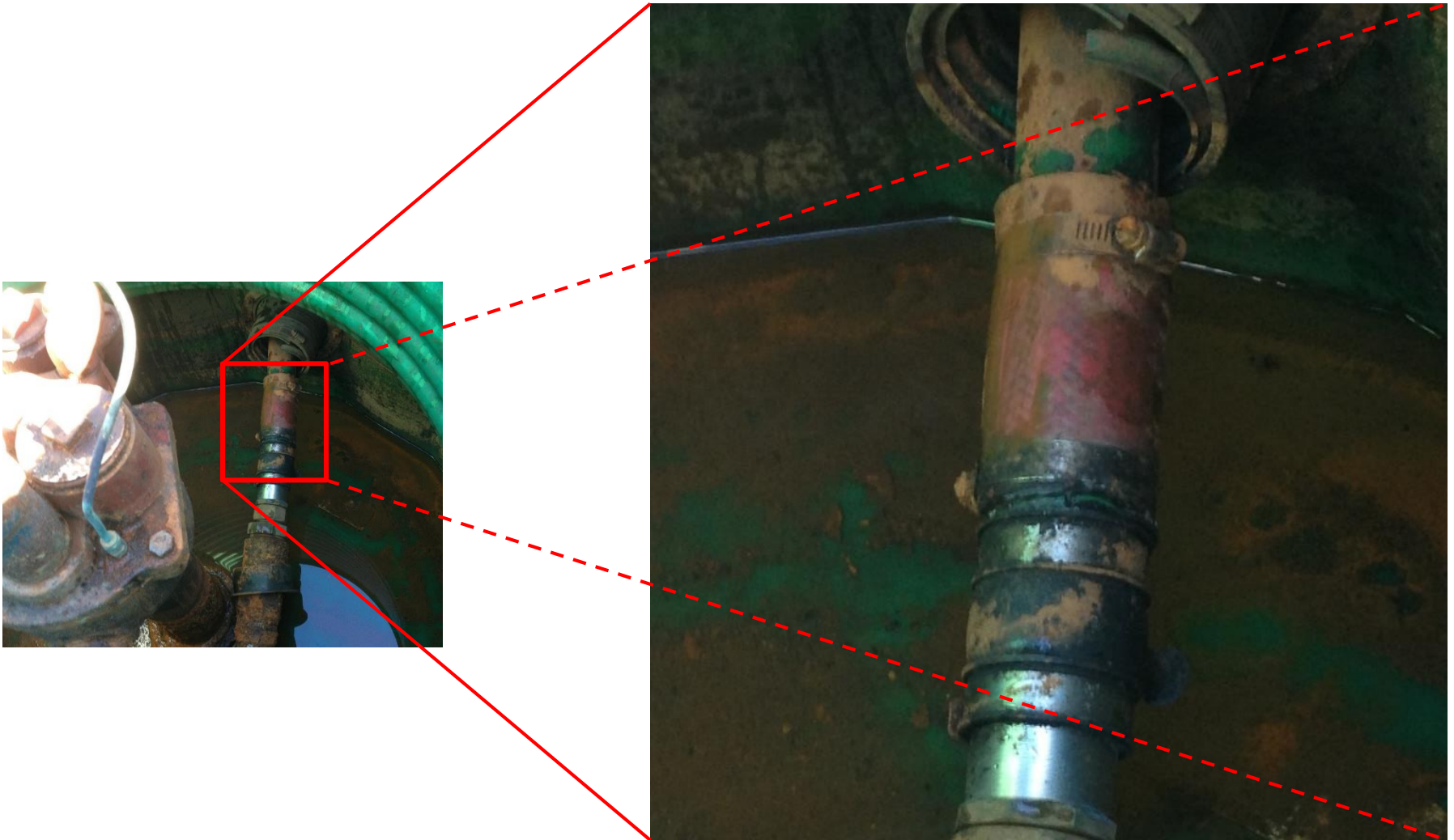
IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

Lest we forget about our old “friend”



IS THE PIPING AND OTHER EQUIPMENT IN GOOD CONDITION?

Lest we forget about our old “friend”



# WHAT ACTION(s) MUST BE TAKEN?

## Appendix A

Note: Federal UST regulations do not require you to report your maintenance activities, use this form, or keep any specific records of your sump inspection and maintenance practices.

Sample Underground Storage Tank Sump And Spill Bucket Inspection Checklist												
Name: _____				Date/Time Of Inspection: _____								
Comments/Follow-Up Needed: _____ _____ _____ _____ _____												
<p>Choose yes or no for each question that applies.                      Choosing no on any item indicates a problem that should be corrected.                      When you have corrected the problem, check the fixed box.</p>												
Turbine/Transition/Intermediate Sumps	Sump No.: _____			Sump No.: _____			Sump No.: _____			Sump No.: _____		
	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?
Are The Lids Tight And Sealed Correctly?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Are The Sump Walls Intact?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Is The Sump Free Of Debris, Liquid, Or Ice?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Is The Sump Free Of Cracks Or Holes?*			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Are Sump Components Leak-Free (No Leak Or Drips)?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Is The Sump Free Of Staining/New Staining?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Are The Sensors Positioned Correctly?*			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Are All Penetrations Into The Sump In Good Condition?*			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Are The Test Boots Positioned Correctly And In Good Condition?*			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Is The Piping And Other Equipment In Good Condition?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Dispenser Sumps	Dispenser No.: _____			Dispenser No.: _____			Dispense No.: _____			Dispenser No.: _____		
	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?
Is The Sump Free Of Debris, Liquid, Or Ice In The Sump?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Is The Sump Free Of Cracks Or Holes?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Are Sump Components Leak-Free (No Leak Or Drips)?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Is The Sump Free Of Staining/New Staining?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Are The Sensors Positioned Correctly?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Are All Penetrations Into The Sump In Good Condition?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Are The Test Boots Positioned Correctly And In Good Condition?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Is The Piping And Other Equipment In Good Condition?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Spill Buckets	Bucket No.: _____			Bucket No.: _____			Bucket No.: _____			Bucket No.: _____		
	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?	Yes	No	Fixed?
Are The Lids To Your Spill Buckets In Good Condition?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Is The Spill Bucket Free Of Debris, Liquid, Or Ice?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Is The Spill Bucket Free Of Cracks Or Holes?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>
Are The Drain Valves Operational?			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>

\*Only for contained sumps



## UST Systems: Inspecting And Maintaining Sumps And Spill Buckets

Practical Help And Checklist



Photo: EPA/600/R-02/001



Turbine/Transition/Intermediate Sumps	Sump No.: ____			Sump No.: ____		
	Yes	No	Fixed?	Yes	No	Fixed?
Are The Lids Tight And Sealed Correctly?			<input type="checkbox"/>			<input type="checkbox"/>
Are The Sump Walls Intact?			<input type="checkbox"/>			<input type="checkbox"/>
Is The Sump Free Of Debris, Liquid, Or Ice?			<input type="checkbox"/>			<input type="checkbox"/>
Is The Sump Free Of Cracks Or Holes?*			<input type="checkbox"/>			<input type="checkbox"/>
Are Sump Components Leak-Free (No Leak Or Drips)?			<input type="checkbox"/>			<input type="checkbox"/>
Is The Sump Free Of Staining/New Staining?			<input type="checkbox"/>			<input type="checkbox"/>
Are The Sensors Positioned Correctly?*			<input type="checkbox"/>			<input type="checkbox"/>
Are All Penetrations Into The Sump In Good Condition?*			<input type="checkbox"/>			<input type="checkbox"/>
Are The Test Boots Positioned Correctly And In Good Condition?*			<input type="checkbox"/>			<input type="checkbox"/>
Is The Piping And Other Equipment In Good Condition?			<input type="checkbox"/>			<input type="checkbox"/>
Dispenser Sumps	Dispenser No.: ____			Dispenser No.: ____		
	Yes	No	Fixed?	Yes	No	Fixed?
Is The Sump Free Of Debris, Liquid, Or Ice In The Sump?			<input type="checkbox"/>			<input type="checkbox"/>
Is The Sump Free Of Cracks Or Holes?			<input type="checkbox"/>			<input type="checkbox"/>
Are Sump Components Leak-Free (No Leak Or Drips)?			<input type="checkbox"/>			<input type="checkbox"/>
Is The Sump Free Of Staining/New Staining?			<input type="checkbox"/>			<input type="checkbox"/>
Are The Sensors Positioned Correctly?			<input type="checkbox"/>			<input type="checkbox"/>
Are All Penetrations Into The Sump In Good Condition?			<input type="checkbox"/>			<input type="checkbox"/>
Are The Test Boots Positioned Correctly And In Good Condition?			<input type="checkbox"/>			<input type="checkbox"/>
Is The Piping And Other Equipment In Good Condition?			<input type="checkbox"/>			<input type="checkbox"/>

\* Only for contained sumps

Where is the “N/A” ?

## Appendix A

Note: Federal UST regulations do not require you to report your maintenance activities, use this form, or keep any specific records of your sump inspection and maintenance practices.

### Sample Underground Storage Tank Sump And Spill Bucket Inspection Checklist

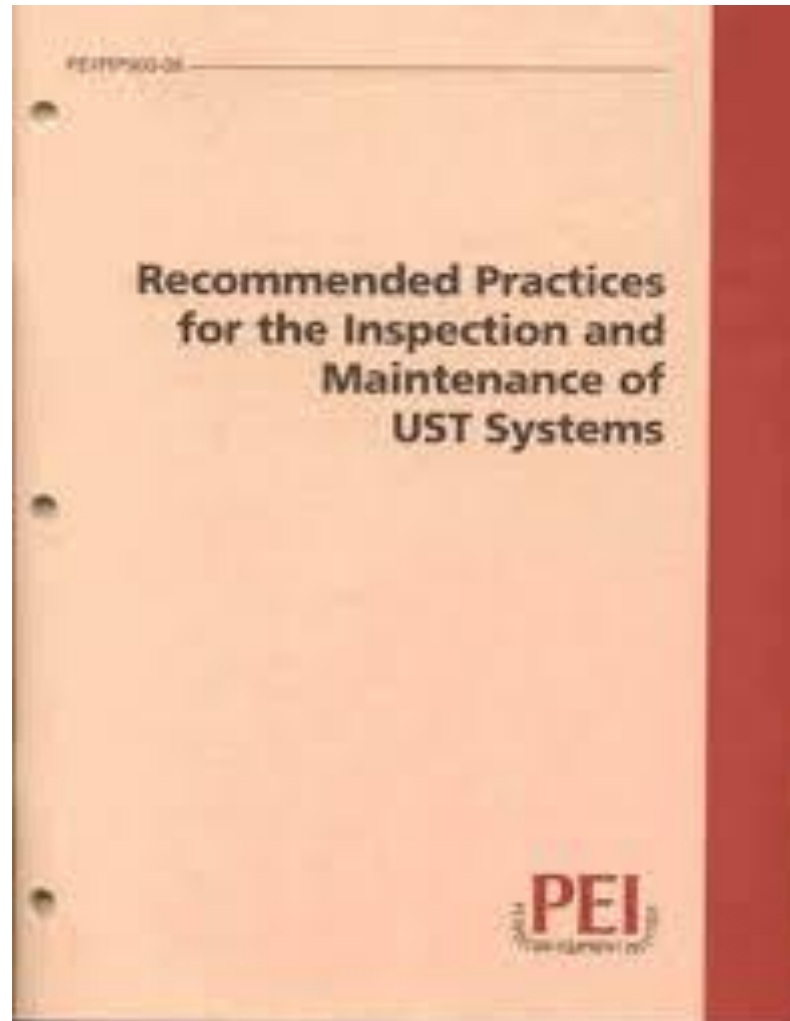
Name: \_\_\_\_\_ Date/Time Of Inspection: \_\_\_\_\_

Comments/Follow-Up Needed: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Choose yes or no for each question that applies.  
Choosing no on any item indicates a problem that should be corrected.  
When you have corrected the problem, check the fixed box.



IF YOU DON'T LIKE ANY OF THIS – THERE IS ALWAYS PEI/RP900



# HEAP OF SNAKES IN THEM THAR SUMPS!



**KEVIN HENDERSON CONSULTING, LLC**