



Asset Management

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(Water Tanks – Towers & GST)

Jim Higgins

Area Representative

MS, AL, & FL Panhandle

jimhiggins@tankcare.net

601-540-0456

Anson Walck

Area Representative

MS, AL, FL Panhandle

anson@tankcare.net

205-516-0438



Elevated Tank Estimates

Capacity (gallons)	Riser Diameter (ft.)	Inside Area (sq. ft.)	Outside Area (sq. ft.)+	Replacement Cost (Gallons)
50,000	4	3,150	6,500	\$400,000
100,000	4	4,300	8,000	\$800,000
150,000	4	5,100	9,900	\$1,200,000
200,000	4	5,900	11,100	\$1,600,000
250,000	4	6,700	12,700	\$2,000,000
500,000	4	10,000	19,600	\$4,000,000
750,000	4	13,600	29,100	\$6,000,000
1,000,000	4	17,000	36,900	\$8,000,000

Replacement Value:

Elevated Tanks @ \$6-\$8 per gallon.

GST @ \$4-\$6 per gallon

Hydro-pneumatic Tanks @ \$14 per gallon

What is Asset Management?

Maintaining a desired level of service for what you want your asset to provide at the lowest life cycle cost. (EPA)

*Cover
Your
Assets*

Know thy enemy!

Sun Tzu, The Art of War



Main Topics

- 1. Safety*
- 2. Asset Condition*
- 3. Telecommunications*
- 4. Short Term/Long Term Planning*

Safety

- 1. Site Security*
- 2. Trespass Mitigation*
- 3. Cross Contamination*
- 4. System Infiltration*

Site Security



Trespass Mitigation



Cross Contamination



System Infiltration



System Infiltration



Asset Condition

1. *Foundation*
2. *Ladder*
3. *Wind Rods*
4. *Column*
5. *Riser*
6. *Dome*
7. *Vent*
8. *Interior*

Foundation Conditions



Foundation Conditions



Ladder Conditions



Ladder Conditions



Wind Rod Conditions



Column Conditions



Riser Conditions



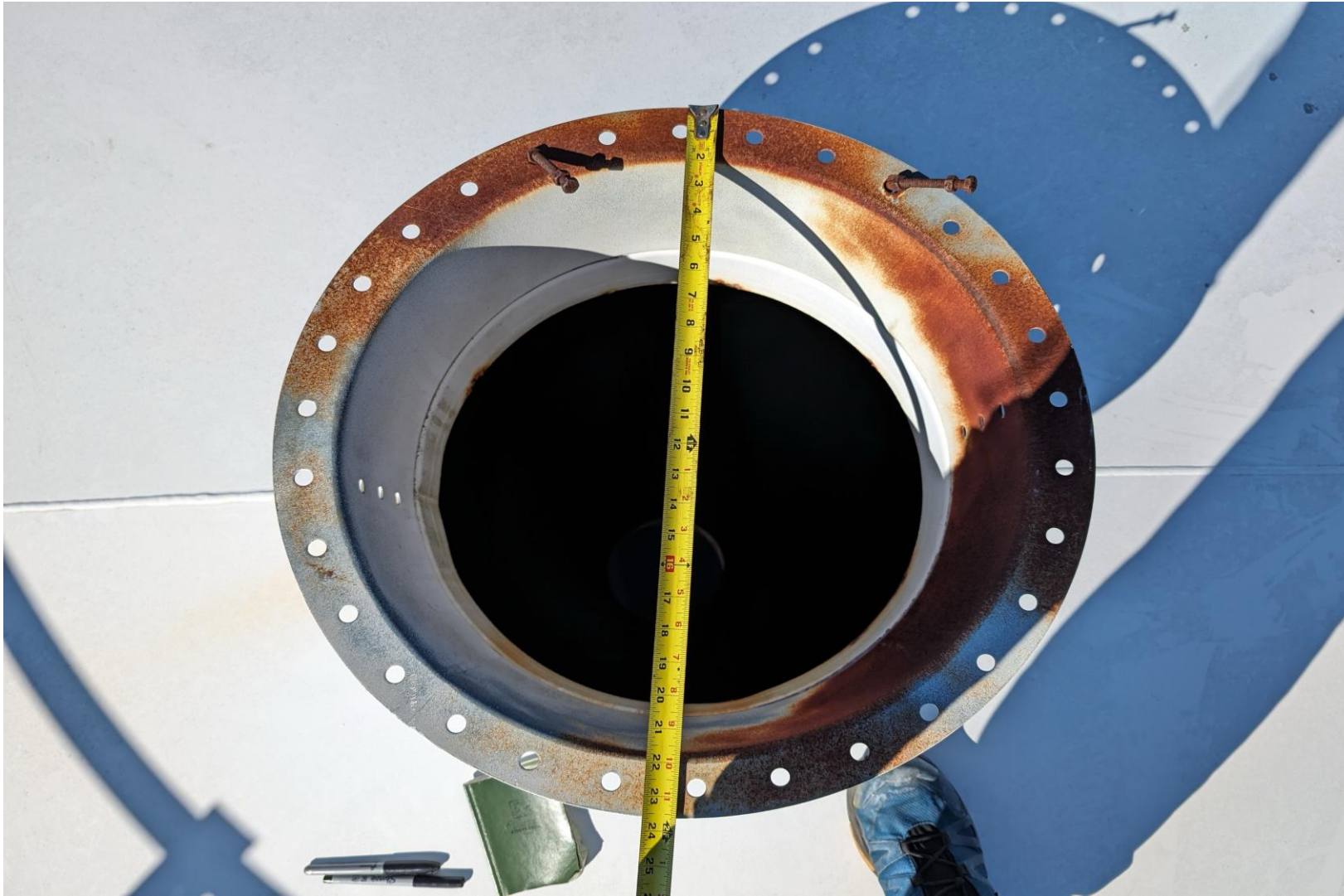
Dome Ladder Conditions



Dome Conditions



Vent Conditions



Vent Conditions



Vent Conditions



Vent Conditions



Interior Ladder Conditions



Interior Ladder Conditions



Interior Conditions



Interior Ladder Conditions



Interior Conditions

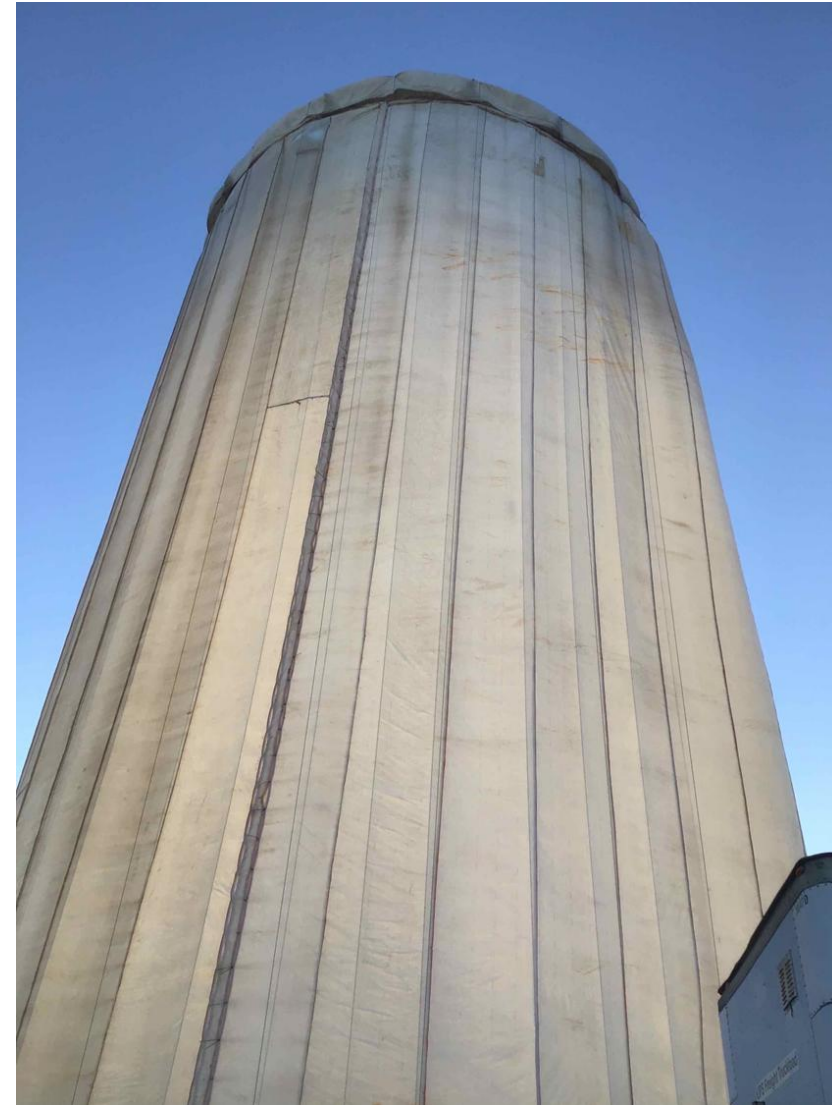


Interior Conditions



Don't "kick the can down the road"...





Part 2 of Main Topics

- 7. *Telecommunications*
- 8. *Coating Failures*
- 8. *Short Term/Long Term Planning*

Telecommunications

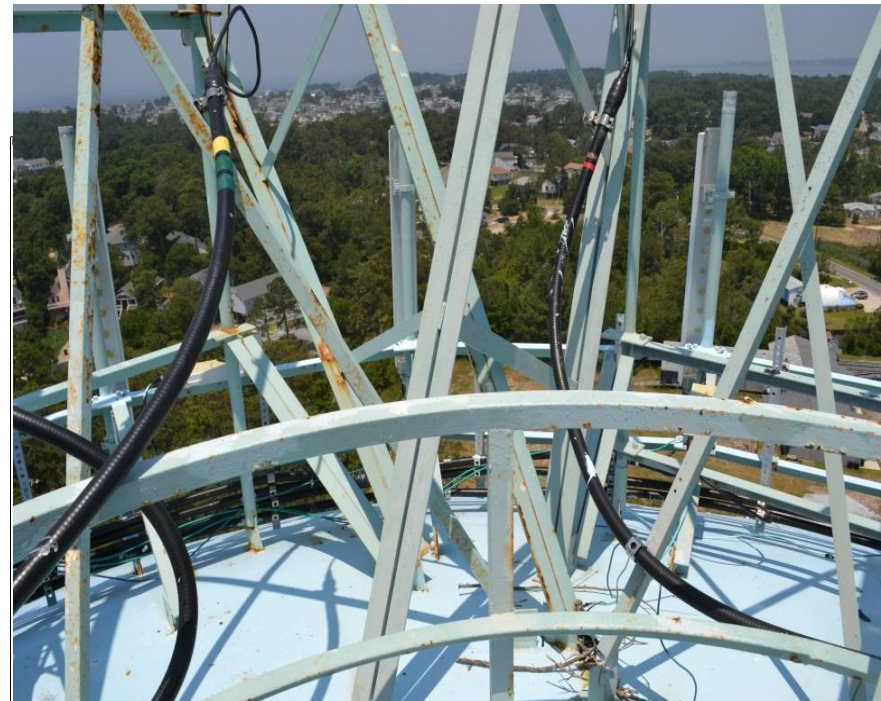


Planning Design

Proper Planning



No Planning



Problem Areas Can Include:

Structural Damage



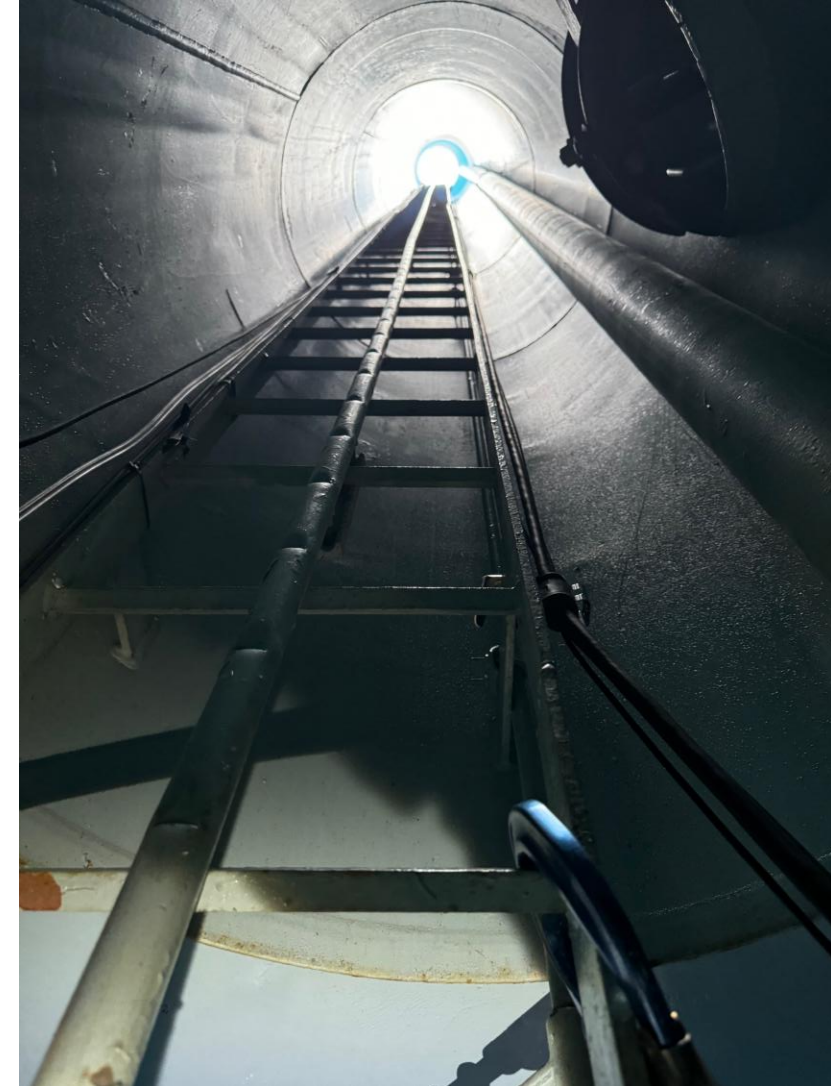
Speaking of....



Weather Dome & Platform



Weather Dome & Platform



Weather Dome & Platform



Weather Dome & Platform



Weather Dome & Platform



**Are my assets in good condition?
Poor condition?**

What does Failure look like?

Failures

All coatings fail. 5 to 15 year lifespan.

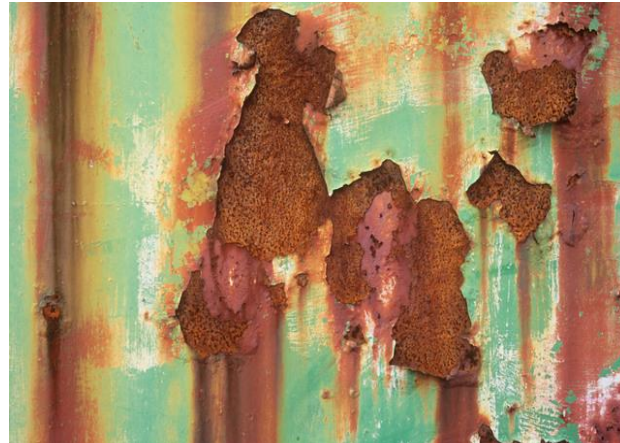
1. *Flaking*
2. *Peeling*
3. *Delamination*
4. *Adhesion Loss*
5. *Cracking*
6. *Checking*
7. *Blistering*
8. *Chalking*
9. *Mudcracking*

Flaking



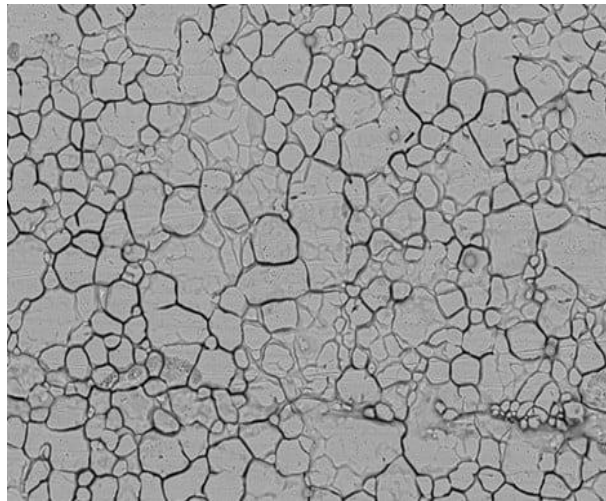
- Surface Contamination
- Poor Surface Preparation
- Insufficient Surface Profile
- Aged Coating
- Exceeded Recoat Window.

Peeling



- Surface Contamination
- Poor Surface Preparation
- Insufficient Surface Profile
- Aged Coating
- Exceeded Recoat Window.

Checking & Cracking



- Rate of Expansion & Contraction.
- Excessive Coating Thickness
- Extreme swings in Temperature
- Found in Old Coatings
- Hardening of Coating

Chalking



- Exposure to Weathering
- UV light degradation
- All Coatings eventually
Chalk = Fail

Do not let it go too far.

**“Kicking the can down the road” only
cost more money and more risk.**

**What is the best way to care for
my tanks, both long-term and
short-term?**

Self-Manage vs Maintenance Program

Self Manage – All on you

Pros:

- Ext/Int work at same time
- Aesthetically pleasing

Cons:

- Ext/Int on different schedule
- 1-2 year warranty - Failures
- Does not address Compliance issues
- No Emergency Services
- No Repairs
- No Inspections
- No Washouts
- Not knowing your subs
- Major cost at once
- No Contract Protection
- Engineer Bias or “Old Mindset”

Maintenance Program – Takes it off you

Pros:

- Budgeting for needs
- Qualified Experts (In-house NACE, Eng, & Contractors)
- Records Kept (Inspection, Renovation, Compliance)
- Exterior Painting – Guaranteed
- Interior Painting – Guaranteed
- Repairs – Guaranteed
- Emergency Services – Guaranteed
- Compliance Mods – Guaranteed
- Annual Inspections
- Washouts
- Detailed Schedule (Each tank. Every year)
- Customized Engineered Plans
- Cell Antenna, Engineering Analysis, & Management (Weather Domes included)
- Consistent POC – Local
- In-House Crews – Local

Cons:

- Contract (Pro??)
- Cancellation Fees (Work completed Only – Fair?)

The FINAL Key to Effective Vertical Asset Management

		300Mg EWT	200MG EWT	100MG EWT	100MG EWT	500MG GSW	600MG GSW	
2022	Year 1	Exterior/Ladder Gate		Ladder Gate	Washout/Ladder TU			2022
2023	Year 2							2023
2024	Year 3			Washout-TU Ladder and Vent				2024
2025	Year 4	Interior		Exterior				2025
2026	Year 5		Interior				Washout	2026
2027	Year 6		Exterior		Exterior/Washout	Washout		2027
2028	Year 7							2028
2029	Year 8			Interior				2029
2030	Year 9	Exterior/Washout						2030
2031	Year 10		Washout			Exterior	Washout	2031
2032	Year 11				Interior	Washout		2032
2033	Year 12			Exterior				2033
2034	Year 13			Washout				2034
2035	Year 14	Washout	Exterior		Exterior			2035
2036	Year 15		Washout				Washout	2036
2037	Year 16				Washout	Washout		2037
2038	Year 17	Exterior						2038
2039	Year 18			Washout		Exterior		2039
2040	Year 19	Interior						2040
2041	Year 20		Interior	Exterior			Washout	2041
2042	Year 21				Washout	Washout		2042
2043	Year 22		Exterior		Exterior			2043
2044	Year 23			Interior				2044
2045	Year 24	Washout						2045
2046	Year 25	Exterior	Washout				Washout	2046
2047	Year 26				Interior	Exterior/Washout		2047

What questions do you have?



Jim Higgins

NACE Certified Inspector

Cell: 601-540-0456

jimhiggins@tankcare.net