COMPOSITE ELEVATED WATER STORAGE TANK

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HDR

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Typical Water Storage Tanks In the Northwest

- Ground Level Storage Reservoirs
- Standpipes
- Wood Stave Tanks
- Elevated Steel Storage Reservoirs
- Elevated Composite Reservoirs

Steel Standpipes

Ground Storage Reservoirs

Lined

Prestressed Concrete

Wood Stave Reservoir

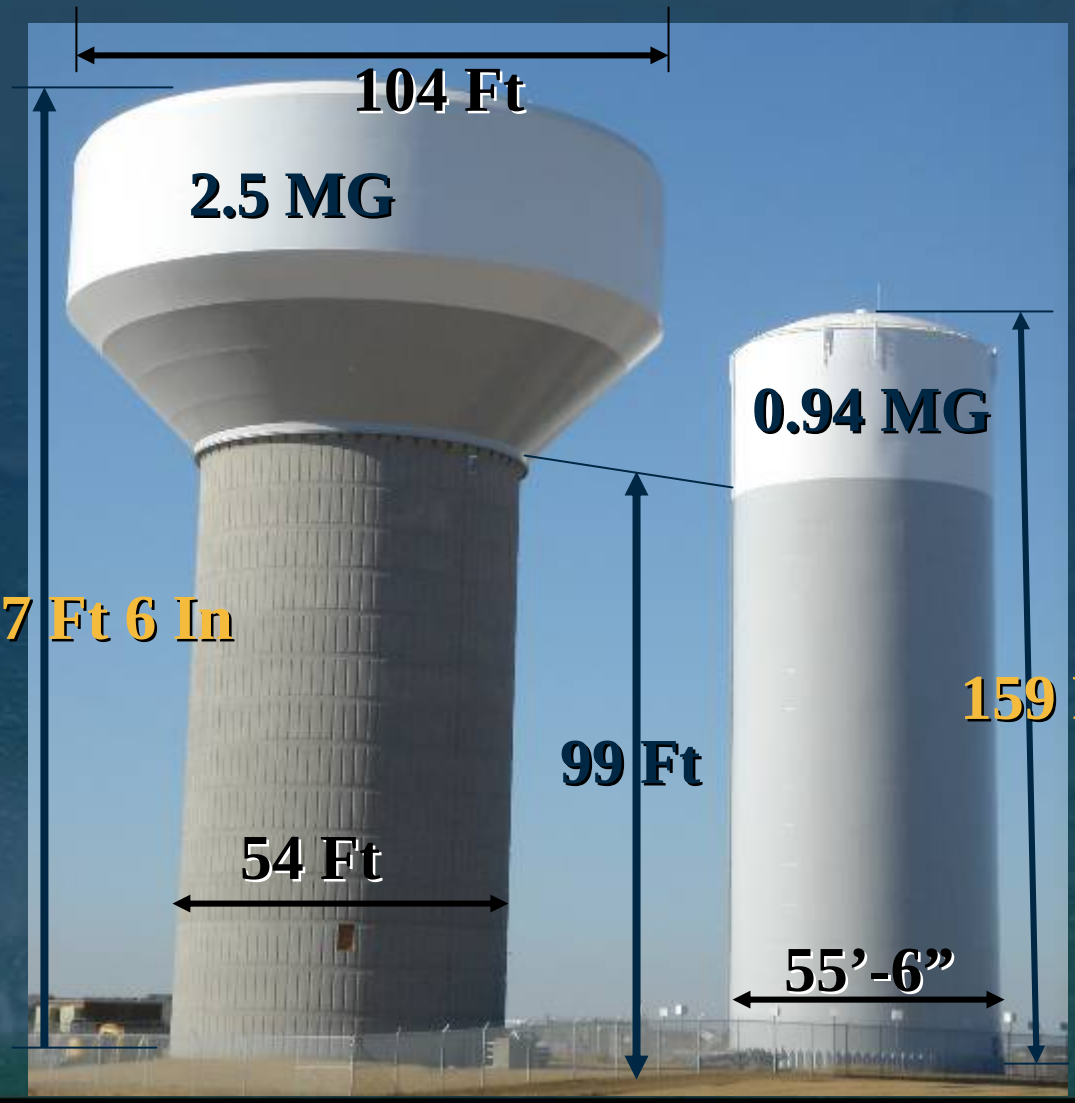
Elevated Steel Reservoirs

Elevated Composite Reservoirs

Why Chose Elevated Composite?

- Cost of Steel Has Escalated
- Several Contractors Now Construct Composite Tanks Making the Costs Competitive
- All the Storage Volume is Useable
- Reduced Maintenance Costs
- Multi-use Potential of Space in Pedestal (Office - Storage)

More Useable Volume



Design Considerations

- Seismic Requirements
- Air Gap For Overflow
- Supplemental Disinfection
- Sampling
- Circulation of Contents
- Security

Seismic Loading Is A Consideration

Concrete Foundation

Donut 35 Ft Inside
69 Ft Outside

What Makes the Tank Competitive

Reinforcing Steel Pre-assembled

Prefabricated Forms

Pre-Assembled Reinforcing Steel

Forms Move Up Only

Forming Top of Pedestal and Bottom of Reservoir

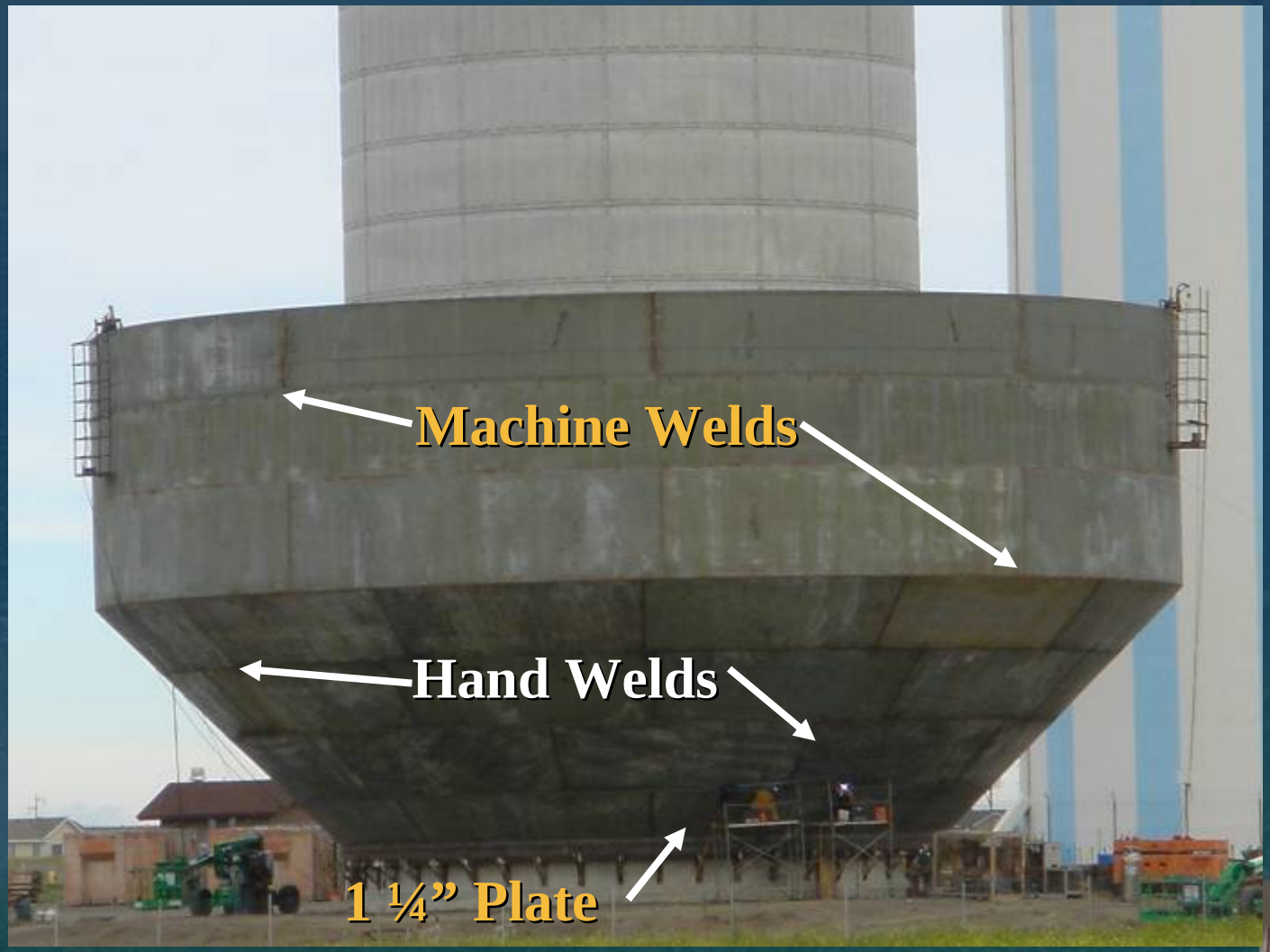
What is Next After the Concrete Work?

Where is The Steel Tank Constructed?

Set the Ring Beam Supports

Rig and Beginning Welding the Cone Portion of the Reservoir

Certified Welding Inspector Should Be Part of Engineering Construction Team



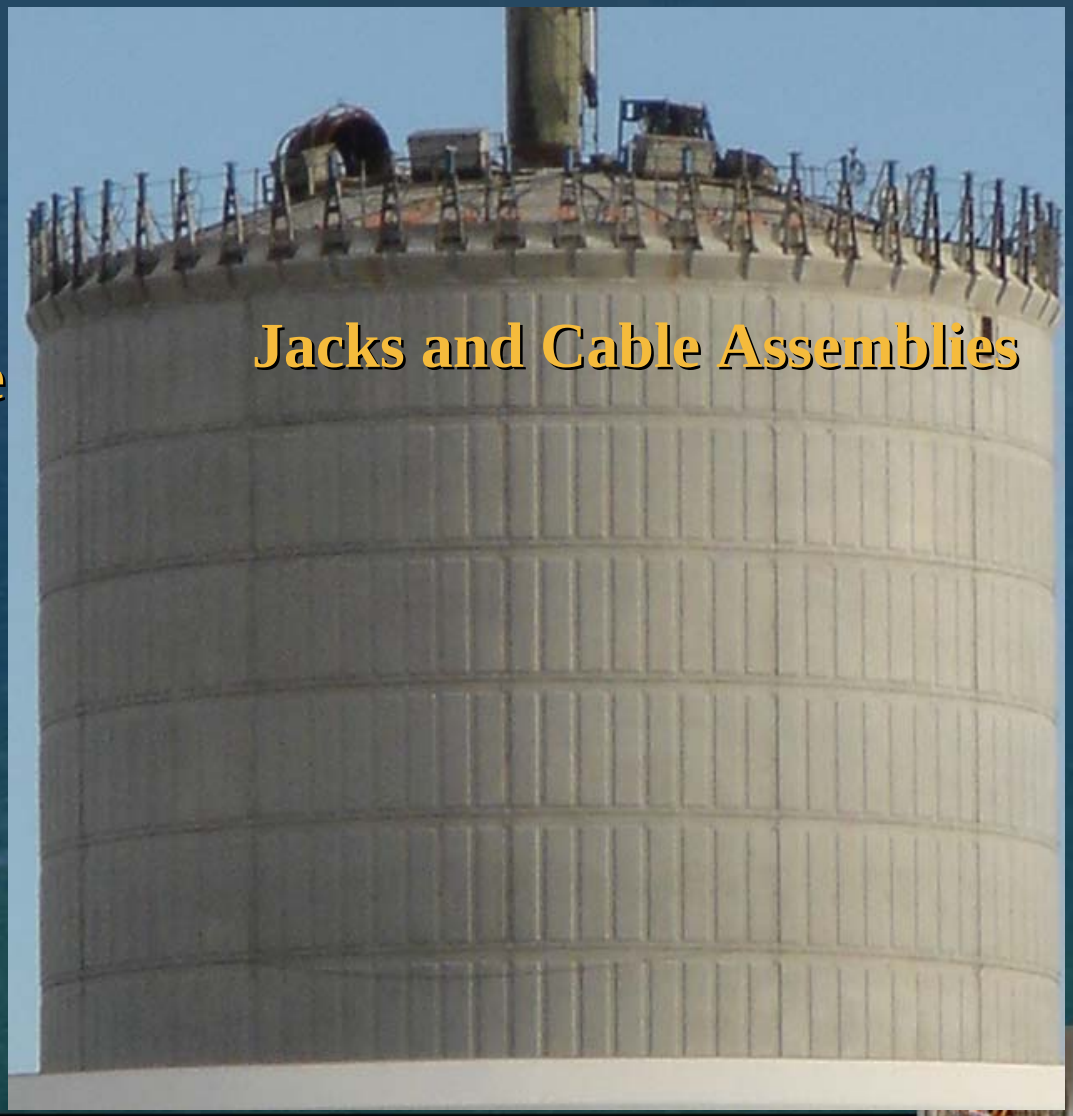
Welding From Inside As Well As Outside of Tank

Certified NACE Coating Inspector Should be Part of the Engineering Construction Team

Day of Tank Raising
Wind Less Than 5 MPH

Raising 455,000 Pounds in Under 4 Hours

First Jacking Sequence



Jacks and Cable Assemblies

Two Hours Into the Lifting Process

Tank in Final Position

Lifting Completed

Tank Bottom Pressure Checked for Leaks

Repairing Leaks in Tank Bottom

Tank Bottom is Prepared for Grouting Voids

2” Threaded Couplings at Approximately 8 Ft Centers For Grout

Grout Being Pumped Into Void Between Reservoir ¼” Plate Bottom and Concrete Roof On Pedestal

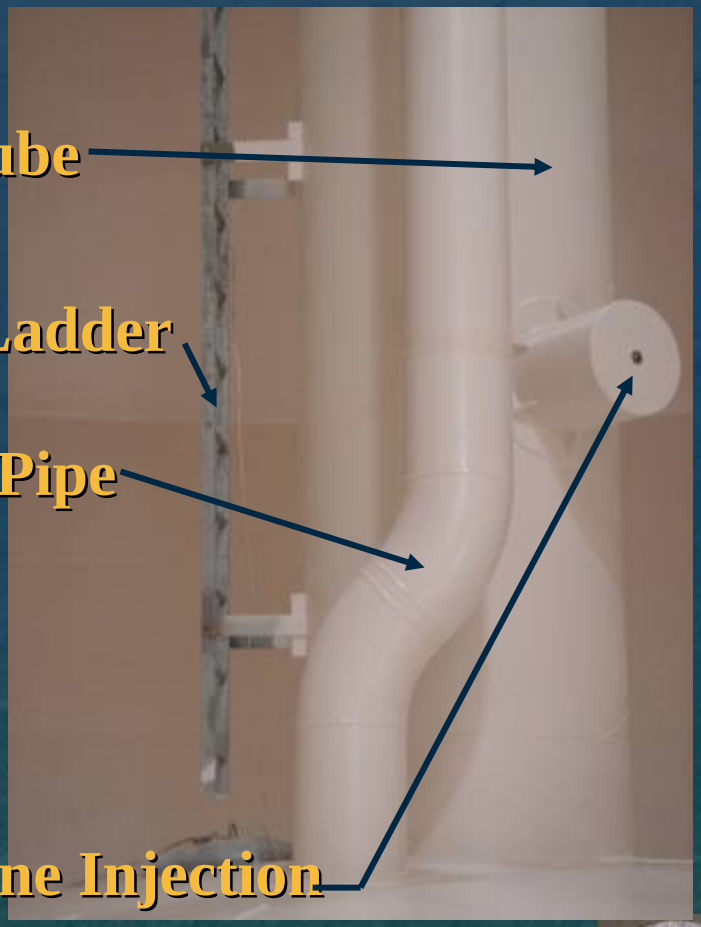
Grout Flowing into Next Grouting Port

Coating Inside of Tank

Painter's Rail Inside Reservoir

Holiday Testing Interior Tank Coating

Inside Components of Reservoir



Access Tube

Access Ladder

Overflow Pipe

Chlorine Injection
or Sample Port

Completed Tank

FAA Clearance Light

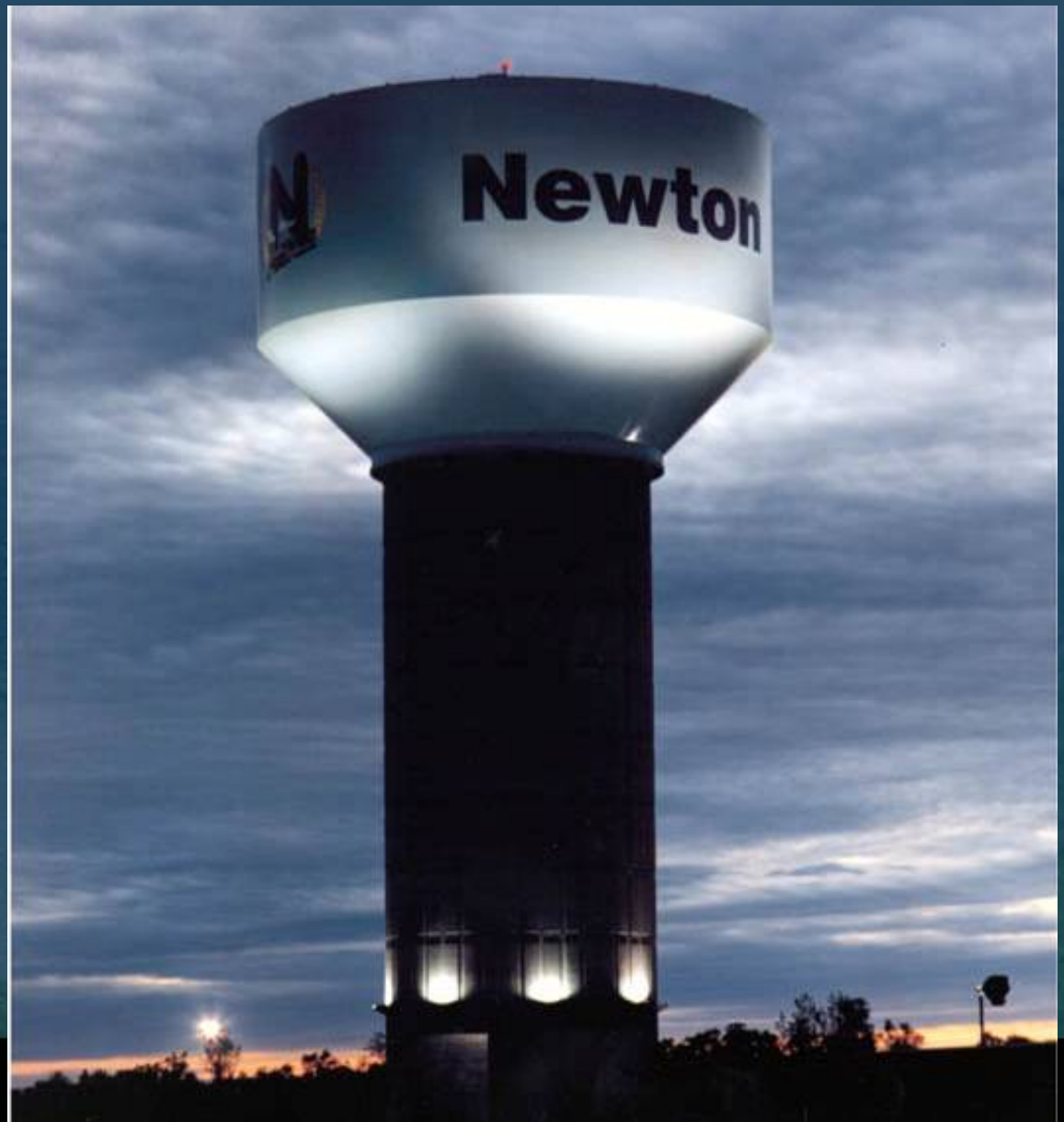
Tank Ventilation Louver

Center Tube Access

Tank Access

Air Gap For Overflow and Drainage Pipe

Lighting Enhancements



Questions?

Contact

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