



Installation and Maintenance Manual

**WELDED CARBON AND
STAINLESS STEEL
WATER STORAGE TANKS**

Introduction

Every BH Tank water storage tank is designed to provide many years of service when properly installed and maintained. The following are guidelines to protect your investment and comply with tank warranty requirements. Please perform the following maintenance observations and corrections as periodically recommended or as required below.

Most owners or their agents can inspect the tanks and perform some maintenance tasks with little or no extra cost. However, some tasks should be handled by the tank manufacturer or their authorized agents.

INSTALLATION REQUIREMENTS

Tank installation shall be in accordance with Uniform Building Code, American Water Works Association Standard D-103, NFPA-22 (as applicable), and Per BH Tank (manufacturer) Specifications and Warranty Requirements. Contact BH Tank for further Recommendations.

MAINTENANCE REQUIREMENTS

Site Inspection

Vegetation and soil, which can trap moisture against concrete and steel, should be cleared from the base of the tank. Similarly, tree limbs and bushes should be trimmed from the tank shell to prevent scratches in the steel coating. (Scratches are not only unsightly but precursors to premature coating failure and corrosion.)

In addition to examining the surrounding area, the site should be surveyed for signs of unauthorized access or vandalism. Unauthorized access is a potential liability for the tank owner, and a possible threat to water system security and the tank itself. Manholes and access doors to the tank interior should be checked frequently to ensure that they are secure.

Foundation Inspection

Tank foundations should be evaluated on a regular basis, as deterioration of the foundation can lead to major problems elsewhere. Careful visual observation is key to inspecting a foundation.

The presence of any of the following factors signals the need for immediate repairs: signs of leakage, abnormal vegetation growth, ponding, settlement, cracking, gravel spillage or exposed reinforcing steel. Some foundation repairs can be accomplished without special skills or training, while other, more severe deterioration may require professional assistance.

A. Concrete Ring Wall and Slab Foundation

1. Annually examine foundation to make sure that no fractures have developed. Fractures or other distortions can cause eccentric loading on the steel tank and could lead to structural damage or failure.
2. Make thorough check at base of tank to ensure:
 - a) That there are no voids or gaps between tank bottom and foundation due to foundation settlement.
 - b) That anchor bolts (if used) are tight.

B. Foundations on Granular Berm

1. Annually examine foundation to make sure that no wash outs have developed. Sufficient water drainage away from the tank should be maintained.
2. Keep site clear of vegetation growth within five feet of tank.
3. Keep site clear of tree growth within thirty feet of tank.

Tank Inspection

Assessment of the foundation and tank site should be followed by examination of the tank itself. Inspect for signs of corrosion and leaking, and assess the condition of connections and screens.

Leaks may not be readily visible but instead may be detected through the presence of rust spots, coating bubbles, saturated soil, or mineral streaks. If a leak is discovered, contact your local dealer or the tank manufacturer. Photographs can be of great assistance in describing the problem.

Examine the condition of sanitary items such as the overflow discharge screening and vent screening. Be sure that the screens are clear of debris and free of holes or gaps. Vent screens also are present on the tank roof. If the inspection person is trained in accessing heights and equipped with the proper safety gear, the vent screen condition may be monitored. Extreme care and caution should be taken when accessing welded tank roofs. If the tank is equipped with rafters, walk on or near the vertical overlaps, avoid walking in the center of the tank roof panels..

NOTE: ENTERING A WATER STORAGE TANK SHOULD BE PERFORMED ONLY BY PROPERLY EQUIPPED AND TRAINED PERSONNEL. EXTREME CAUTION SHOULD BE USED IF ENTERING TANK FROM DECK MANWAY. BH TANK RECOMMENDS ACCESS BY GROUND LEVEL (SHELL MANWAYS) ONLY. IF TANK IS NOT EQUIPPED WITH A SIDE-SHELL MANWAY, CONTACT BH TANK FOR RECOMMENDATIONS OR ACCESS INSTRUCTIONS.

(Worker training — whether for accessing heights or for confined-space entry — is available from a variety of sources, including the Occupational Safety and Health Administration, www.osha.gov.)

1. Visually inspect tank interior through the deck (roof) manway annually. If excess mineral build-up, rust or coating degradation is noted, drain tank and inspect for the following:
2. Prior to draining tank, contact tank distributor or tank manufacturer for coating touch-up procedures. Most repairs can be performed by untrained personnel with some instructions.
3. Carefully remove the side-shell manway to prevent damage to the neoprene rubber gasket.
4. Remove sediment that has collected on tank bottom using a soft bristle broom, squeegee or vacuum. Rinse with clean water and flush out tank if possible.
5. Visually inspect submerged surfaces, including deck and support structure, for signs of corrosion or coating damage. Use a battery powered flashlight. **DO NOT USE ELECTRIC POWERED LIGHTS OR TOOLS INSIDE TANK.**

6. Check paint coating for wear caused by access or turbulence of liquid stored in tank. If coating shows excessive wear – re-coating may be required.
7. If painting is required, contact tank manufacturer for painting recommendations.
8. Check all interior appurtenances for wear or damage and repair as required.
9. Inspect deck support structure for any distortion that may have occurred from vacuum or pressure build-up.
10. If inside repairs have been made, be sure all materials, equipment and tools have been removed before replacing manway cover and putting tank back in operation.
11. For water tanks it may be necessary to disinfect tank before putting tank back in operation. **DO NOT EXCEED MORE THAN FIVE (5) PARTS PER MILLION OF CHLORINE FOR “SHOCK” DISINFECTING.** Contact BH Tank for recommendations for correct disinfecting of tank. In general, a maximum of 1 ppm residual should be sufficient for disinfecting purposes.

Servicing of Appurtenances

Vent

Clean screen of all debris that may have collected in or on top of it. Check screen wire for deterioration and replace if required. In extreme cold climates, check for screen icing or snow blockage.

Nozzles and Connecting Pipes.

Check for distortion of tank wall at location of attachment of pipe nozzles. This distortion could be caused by difference in foundation settlement between tank and attaching piping. This distortion must be corrected by adjusting pipe supports as required.

Liquid Level Indicator (BH Tank Targeting Reading Type)

Annually inspect the following:

1. Check if indicator rides smoothly up and down gage board.
2. Clean gage board of any foreign material that may inhibit operation.
3. Use a dry lubricant on pulley shafts if required.
4. In extreme cold climates keep gage board clear of ice buildup.

OEM Level Indicators:

Follow manufacturers' recommendations for inspection and maintenance.

Valves, Sample Boxes, Sight Glass, Pressure Gage, Etc.

Annually inspect for smooth and proper operation. Clean and repair as required.

Outside Ladder, Cage, and Perimeter Handrails.

Annually inspect and tighten bolts as required.

Conclusion

An overall interior and exterior inspection of the tank should be performed annually to evaluate damage or problems that may have occurred. The inspection should include any signs of rust, product leakage, coating damage, equipment functions, and any other item

related directly or indirectly with the performance of the tanks and the safe operation of the entire water system. All corrective action should be completed immediately after a problem is identified to assure irreversible damage does not occur.

Monthly inspections of level controls, overflow and venting systems should be made to assure damage does not occur to the tank from plugged or inoperative equipment.

FAILURE TO INSPECT OR MAINTAIN YOUR WATER STORAGE TANK IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS MAY RESULT IN VOIDANCE OF WARRANTY.

Inspections can be utilized by the owner's own personnel. If this is not feasible, or the severity of the problem warrants the need, an experienced tank inspector or repairman can be hired through BH Tank's Customer Service Department at 800-221-9751.