READY TO INSPECT — FIELD CHECKLIST

Thermal energy storage tank quarterly maintenance checklist

A quarterly thermal energy storage tank round is short on purpose: it catches the wear items that fail between annual services. This checklist is sized for a tech with a phone. Every item says what to look at and the photo that proves the round happened. Work is commonly verified against IMC (mechanical code), manufacturer's published instructions. Confirm the edition your authority having jurisdiction has adopted.

Who runs it: The HVAC or maintenance tech on the quarterly mechanical round. When: Every quarter through the cooling season, walked with the chiller plant. A tank that stops shifting load quietly costs demand charges long before anyone notices.

Insulation and shell

- [ ] Tank insulation and vapor seal dry and intact
  No sweating, dripping or wet spots on the jacket, vapor seal continuous at seams and penetrations, no corrosion staining running down the shell.
  2 photos required
- [ ] Tank supports and connections sound
  Supports and anchors solid, no shifting or cracking at the base, piping connections dry with no weeping at flanges or unions.
  1 photo required
- [ ] Tank openings closed and secured, entry points signed
  Hatches latched or locked and signed as confined spaces, or lids and fill caps closed on packaged tanks, gaskets seated. No entry is made on the quarterly round.
  1 photo required

Level and temperature

- [ ] Level and temperature readings agree with the plant controls
  Local level and temperature match what the plant is reading, charge and discharge temperatures show a real spread, sensors not stuck or shorted.
  2 photos required
- [ ] Stratification sensors read at each height up the tank
  On stratified chilled water tanks, sensors read top to bottom show a clear thermocline, with no reading out of step with the sensors above and below it.
  No photo required
- [ ] Ice inventory display checked against the tank level
  On ice storage, the inventory shown at the BAS agrees with the tank's level indicator or ice sensor for that point in the cycle, and the reading is moving, not stuck.
  No photo required
- [ ] Glycol concentration read with a refractometer
  On glycol ice systems, the loop sample reads within the design concentration and is compared with last quarter's reading, with any loss noted.
  No photo required
- [ ] Makeup water use compared with last quarter's meter reading
  Where the tank has metered makeup, use since the last visit in line with past quarters. A steady rise points to a leak or an overflow running.
  No photo required

Charge and discharge

- [ ] Tank charges and discharges on its schedule
  Tank observed charging off-peak and discharging on-peak per the sequence, isolation and changeover valves stroking to the right position, flow in the correct direction.
  1 photo required

- [ ] Recent charge and discharge trends reviewed at the BAS
  Trends show each charge finishing before the on-peak window and discharge carrying the load the sequence plans for, end-of-charge temperature or inventory at design.
  1 photo required

- [ ] Charge flow held within the diffusers' design rate
  On stratified tanks, charge and discharge flow at the BAS stays within the design rate for the diffusers, since excess flow mixes the thermocline away.
  No photo required

Water treatment and reporting

- [ ] Tank water treatment test results reviewed in the log
  Treatment readings since the last visit present and within the program's ranges, chemical added as scheduled, and any out-of-range result followed up.
  No photo required

- [ ] Leaks, sweating and sensor faults reported to the owner
  Wet insulation, weeping connections, disagreeing sensors and missed charge cycles listed for the owner with location and the date first seen.
  No photo required