READY TO INSPECT — FIELD CHECKLIST

# Reverse osmosis system annual maintenance checklist

The annual reverse osmosis system service is the deep pass: the measurements, cleanings and tests a quarterly round doesn't reach. This checklist keeps the full service on record with the photos that make it defensible later. Work is commonly verified against manufacturer's published instructions, IPC / UPC plumbing codes. Confirm the edition your authority having jurisdiction has adopted.

Who runs it: The water-treatment service tech on the annual service of the RO system.  When: Once a year, when the skid can be taken down for the clean-in-place or membrane change and the storage tank can be drained and re-charged.

## Shutdown and isolation

- [ ] Users told product water is off during the service
  Owner and the people who draw RO water told the outage window and any backup supply before the skid is shut down, and told again when water is back.
  No photo required

- [ ] Pre-service pressures, flows and conductivity recorded
  Feed, concentrate and permeate pressures, flows and conductivity read before shutdown, so the post-service figures have a like-for-like comparison.
  1 photo required

- [ ] Every pump and control feed locked and tagged, skid depressurized
  Feed or booster, high-pressure and dosing pumps and control power locked, tagged; feed shut, skid bled down. Powered runs: vessels closed, people clear, locks off by whoever hung them, re-locked.
  1 photo required

## Membrane service

- [ ] Cleaning chemicals matched to the manufacturer's CIP procedure
  Cleaner labels read against the membrane maker's CIP procedure, goggles, face shield, chemical gloves and eyewash ready before any mixing starts.
  1 photo required

- [ ] Membranes cleaned or replaced per condition
  Clean-in-place run or membranes changed based on the trended pressures and quality, vessel and O-rings inspected on reassembly.
  2 photos required

- [ ] CIP solution temperature and pH held to the procedure
  Cleaning solution temperature and pH read during recirculation and kept inside the membrane maker's limits, since too hot or too strong a solution damages the membrane.
  1 photo required

- [ ] Sanitization run to the manufacturer's procedure where required
  Sanitizing agent and contact time as the manufacturer states, then rinsed until the residual test reads clear before product water goes back to the users.
  No photo required

- [ ] Flush and cleaning cycle run until rinse is clear
  Full flush or CIP cycle completed, rinse observed running clear before the unit is returned to product, no cleaning chemical left in the vessels.
  2 photos required

- [ ] Spent cleaning solution neutralized before it goes to drain
  Spent CIP solution neutralized and discharged as the site's disposal rules and the chemical supplier's safety data sheet direct, with the quantity used recorded.
  No photo required

## Storage and delivery

- [ ] Storage tank pressure and draw-down checked
  Tank air charge checked against the empty setpoint, draw-down and repressurization observed without short-cycling the pump.
  No photo required

- [ ] UV lamp and quartz sleeve serviced where fitted
  With the UV power isolated, lamp changed on the manufacturer's hours, sleeve cleaned and checked for cracks, lamp-on indicator confirmed after restart.
  No photo required

- [ ] Recovery set back to the commissioning design
  Concentrate valve adjusted so permeate and concentrate flows give the design recovery in the commissioning record, both flowmeters photographed after the change.
  1 photo required

- [ ] Post-service pressures and product reading re-observed
  Operating pressures, permeate flow and the product-quality meter re-read after service and logged against the pre-service figures.
  2 photos required

- [ ] Low feed pressure shutdown and quality alarm exercised
  Feed throttled until the low-pressure switch stops the pump, conductivity alarm triggered by the controller's test function, both responses recorded and reset.
  1 photo required

## Integrity

- [ ] Full skid checked for leaks after reassembly
  Every housing, vessel end cap and fitting disturbed during service brought back up to pressure and checked dry.
  1 photo required