In water treatment, a dead leg is any piece of equipment or length of pipe greater than 3 times its diameter that does not have flow on a consistent basis.

Dead-leg-associated biofilms can cause severe problems including microbiological corrosion, clogged piping, reduced heat transfer and the growth and proliferation of Legionella bacteria.

Where at all possible, dead legs should be removed or engineered out. Effective management strategies are required to reduce problems where dead legs cannot be eliminated.

Best practice measures for the common situations are highlighted below:

**Capped Piping Extension For Expansion:**
Remove dead leg. Alternatively, install drain line or cross connection to flush through on a weekly basis as a minimum, during biocide additions. Automate with timer.

**Basin Equalization Line:**
Install drain line to flush weakly, during biocide additions. Automate with timer. Flush heavily to remove debris during 2X year cleaning and disinfection.

**Standby Recirculation Pump:**
Rotate pumps or operate to establish flow, weekly as a minimum, during biocide additions. Disinfect before operation if out of service > 7 days.

**Standby Chiller (Open For Inspection):**
Establish flow through all off-line equipment, ensuring a weekly flow during biocide presence. Disinfect before operation if out of service > 7 days.

**Free Cooling Heat Exchanger (Economizer):**
Ensure a weekly flow through all heat exchangers, during biocide additions. Disinfect before operation if out of service > 7 days.

**Piping Drop Leg:**
Remove dead leg. Install drain line or cross connection to allow a weekly flush during biocide additions. Automate with timer.

**Out of Service Sand Filter:**
Replace sand and disinfect housing and piping before operation if out of service > 7 days. To permanently decommission, remove filter and terminate piping, leaving no additional dead-legs.

Overall, the most important element is to ensure regular flow of treated water through every part of the system, at least weekly (or in line with the site specific risk assessment), preferably when there is a good, biocidal presence after chemical addition. This can be done automatically (preferred) or manually by opening/closing respective valves as necessary.

All actions should be logged and noted in the site record base.