WHAT YOU NEED TO KNOW
ABOUT BOILER WATER CARRYOVER

CARRYOVER DEFINED
Carryover is any contaminant that leaves the boiler with the steam and can be in a solid, liquid, or vapor form.

EFFECTS
Boiler water carryover can cause deposits to form throughout the system, and if the deposits are significant, heat transfer and/or turbine efficiency can be negatively impacted.

CAUSES
Mechanical causes include boiler design, high water level, firing method, and load characteristics. Chemical causes include high solids concentration (dissolved and suspended), excessive alkalinity, grease, oil, and other contamination.

PREVENTION
Mechanically, low capacity and low-pressure boilers (typically firetube boilers) primarily rely on simple gravity separation of the water and steam. At higher pressures and/or high steaming rates, it's necessary to install internal mechanical steam separating devices to provide acceptable purity steam. The principle chemical factors include the dissolved solids, suspended solids, alkalinity, silica, and oil contents of the boiler water.

TESTING
Carryover presence can usually be verified by testing the condensate. Low conductivity condensate indicates production of high purity steam, while high conductivity condensate may indicate the presence of carryover.

CONCLUSION
Even the most well-designed boiler with a controlled water treatment program produces some carryover. It's key to know how much carryover can be tolerated and operate the system accordingly.